Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

Vol. 3. New York, January 1, 1848. No. 15.

THE
SCIENTIFIC AMERICAN:
PUBLISHED WEEKLY
At 128 Fulton Street, New York (Sun Building,) and 13 Court Street, Boston, Mass.
By Munn & Company.
The Principal Office being at New York.

TERMS---$2 a year---$1 in advance, and the remainder in 6 months.

☞See advertisement on last page.

Poetry.

THE LABORER'S ORISON AT SUNRISE.

How pure the air, how sweet the breeze?
The dewy grass how vernal!
What Being hath created these
But Thou, the great Eternal?
A world of goodness spreads around,
A heaven above doth bless me:
But man, the foe of man is found,
And laws unjust oppress me!

I gird me for another day
Of labor unrequited;
My Father and my Deity!
When shall these wrongs be righted?
Oh! stretch Thine hand out o'er the land,
A strong, a just redresser,
And bid the prostrate poor upstand
And humble the oppressor.

We ask thee for our daily bread,
Our feeble lives to cherish;
And lo! a bounteous feast is spread,
That none for lack may perish.
But king and statesman, peer, and priest,
Whom guile hath made the stronger,
Hath driven thy people from the feast,
Condemned to toil and hunger.

Oh! Lord! how long shall this prevail?
How long Thy judgments linger?
Our little ones for bread do wail,
Their mothers faint for hunger.
Afar, we stand a gloomy band.
Our worth, our wants neglected,
The children in their father land
Cut off, despised, rejected!

"Oh, Lord! how long," the myriads pray,
"How long this sore despisement?"
"There is no God," the oppressors say,
"To mete us out chastisement."
But know, ye proud, ye sordid crowd,
A storm shall yet o'ertake you,
When God's right hand comes o'er the land,
Like withered stems to break you.

To humble your obdurate pride,
To ope your sealed garners,
Rough-shod, a mighty cause shall ride,
O'er you, uplifted scorners;
And change you like the feathered snow,
The melting sun hung o'er it;
And whirl you as the wind doth blow
The desert dust before it!

FRIENDSHIP.

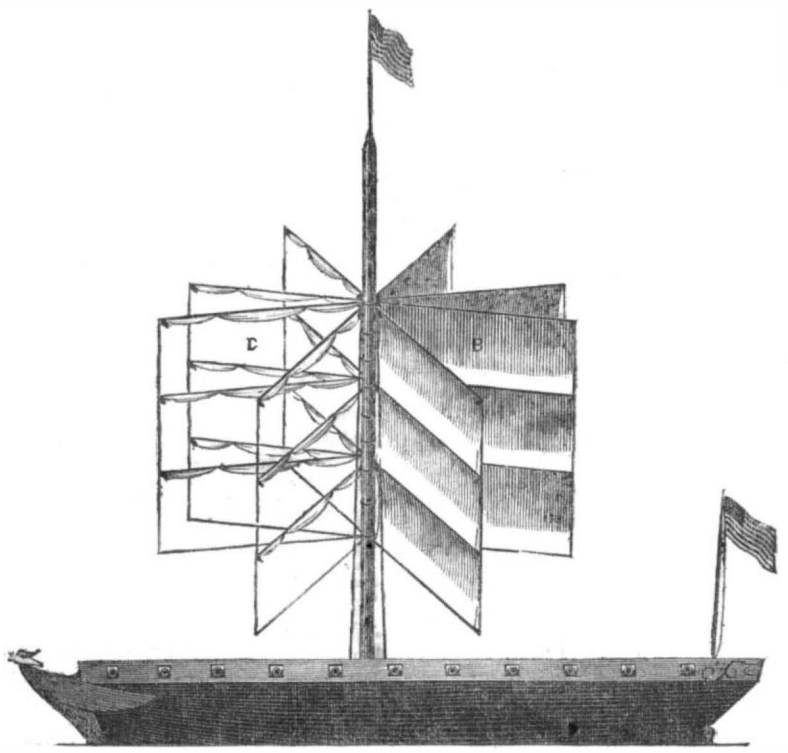
There is a flower in kindred hearts,
That blossoms sweetly there,
And brightly glows in all its parts
Nor withers in despair.

It blooms as well 'neath winter rays,
When earth's o'ercast with snow,
As when the summer sun-shine plays,
On earthly flowers that grow.

In every clime it blooms the same,
Nor varies in its hue;
And would you know this flower's name?
'Tis FRIENDSHIP fond, and true.

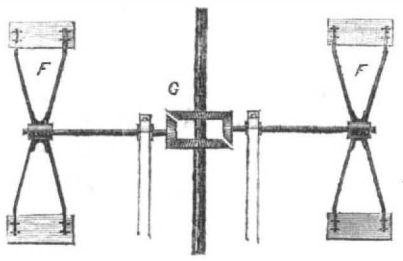
And to the garden of your heart,
A rich supply be given;
And may they from this earthly mart,
Transplanted, be in heaven.

WIND-MILL SHIP.---Figure 1.



The above engraving represents a plan of Mr. Trueman Van Tassel, of Salina, Onondaga Co N. Y., for propelling vessels on the wind-mill principle. The application is in Fig. 1, represented as propelling a vessel upon the screw principle without the use of the paddles, so that the vessel may be constructed very trim for sailing, and therefore none of the underworks are seen. B, represents the sails pressed against the arm C, the sails on the other side of the mast blown back from the arm. Mr. Van Tassel's object is to employ a windmill to propel a boat so as to sail by wind against wind. The principal objection that will be made to this plan, is the difficulty of bracing the mast so as to be perfectly steady, which must be the case for correct motion in the gearing of any machinery attached to the same. That a most powerful motion can be communicated by the above plan, there is no doubt, but the greater the power derived from the wind, the stronger bracing is required for the mast, and almost any plan for this purpose has objections, as there must be an absence of every thing to retard the whirling of the mast or shaft upon its base. Mr. Van Tassel proposes to employ double cranks and paddles for propulsion as less liable to go wrong by the vibration of the mast, which as a great lever must be of immense strength to answer such a purpose.—The base of the mast to be sure can revolve in a box of anti-friction balls and if the mast could be kept always perpendicular, any person can see that the plan in a number of cases will operate economically. The idea of employing the great and free element, the atmosphere, to propel vessels upon the wind-mill principle, well deserves attention, and the following sectional view of adapting this plan to paddle propulsion is simple and beautiful.

FIG. 2.



F F, are the two paddles. G, represents bevil gearing whereby the mast as it revolves propels the two paddle shafts, and presents a plan which braces in no small degree the mast, as each shaft rests on two bearings, one a brace coupled near the connection of the bevil gear and the other on the inside of the paddle box. The one shaft is necessarily a little higher than the other, but the dip of the paddle can regulate this in a degree. The double bevil gearing is necessary to give the same motion to each paddle by every revolution of the mast, which cannot be done by single gearing. By this plan, the dead points of the cranks (which some make out to be a far greater loss of power than we do,) are completely got rid of. The plan, at least for which Mr. Van Tassel deserves credit, is the application of a natural element to a useful purpose, which is more than can be said of a great number of inventions.

Windfall.

The origin of this term is said to be the following. Some of the English nobility were forbidden felling any of the trees in their forests—the timber being reserved for the use of the Royal Navy. Such trees as fell without cutting were the property of the occupant. A tornado was, therefore, a perfect Godsend, in every sense of the word, to those who had occupancy of these extensive forests and a windfall was sometimes of very great value. Some years since it is said a tornado threw down timber enough on the Duke of Marlborough's estate to sell for forty thousand dollars.

Yankees.

Jeffries the great Reviewer, remarked that were a premium of a thousand pounds offered for the best translation of the Greek bible, the prize would be taken by some Yankee, who till that moment had never seen a word of Greek in his life. He would immediately, said he, commence learning the language, to qualify himself for the great undertaking, and would finish the whole work quicker than any other person, and bear off the premium.

Stewart's portrait of Commodore Decatur has been presented to the city of Philadelphia by the widow of the naval hero.

RAIL ROAD NEWS.

The Hudson River Railway.

It has been located as far North as the upper dock at Fishkill, Landing, and a map of it filed in the clerk's office at Poughkeepsie. The right of way for the road has also been procured for nearly all the way up to, and through Poughkeepsie.

Proposed Railroad.

A large meeting has been held at Sodus, N. Y., D. S. Olin in the chair. The object was to obtain a charter for a railroad between Syracuse and Rochester, via Sodus, on Lake Ontario.

The Railroad West.

The Cumberland Civillian, of the 26th ult. says: "If what we hear is correct, no fear need be entertained that the Virginia route will be adopted for the extension of the Baltimore and Ohio railroad West. We are informed that the surveys demonstrate the utter impracticability of passing the Nobley mountain. The grade in many places would be from 100 to 1000 feet, with tremendous ravines to be filled up, and to cap the climax a tunnel of at least more than two thousand feet in length."

Georgia Improvements.

The lower house of the Georgia Legislature, has passed the charter of the West Point and Atalanta railroad. By an amendment, the connection of Columbus with the Montgomery road was secured, or no charter. Also the charter of the Washington and Sparta Railroad Bill, for the connection of these places with the Central Railroad. The Bill to renew the charter of the Milledgville Railroad to any point on the Central Railroad—and also a bill to incorporate a Railroad Company for a road from Clarkesville, Habersham county, to Athens, &c., were passed.

British Railways.

At a dinner given to Sir R. Peel, at Liverpool last month, Lord Sandon, a member of Parliament, made an interesting statement respecting Railroads in Great Britain. He said that, in 1844, that country had expended 62,411,598 pounds on 2,668 miles of railroad. In 1845, and 1846, 7654 miles more were chartered, with a capital of £190,354,000 and in 1847, 1,394 miles, estimated o cost £34,692,800. Total number of miles of railroad, 11,716—requiring an aggregate expenditure of £287,448,398, or about $1,500,0000,000. With a mania prevailing. which absorbs such vast amounts of capital, it is, no wonder that every branch of business in that country is depressed.

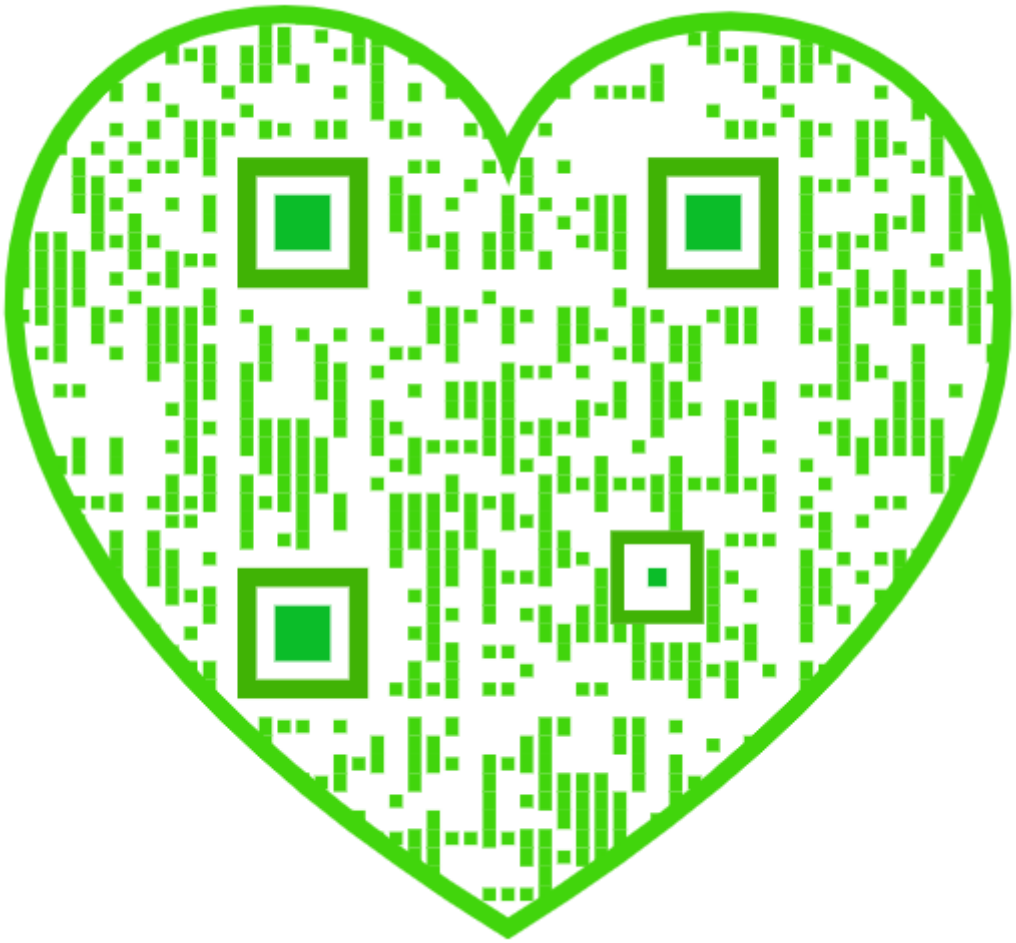
A Great Tunnel.

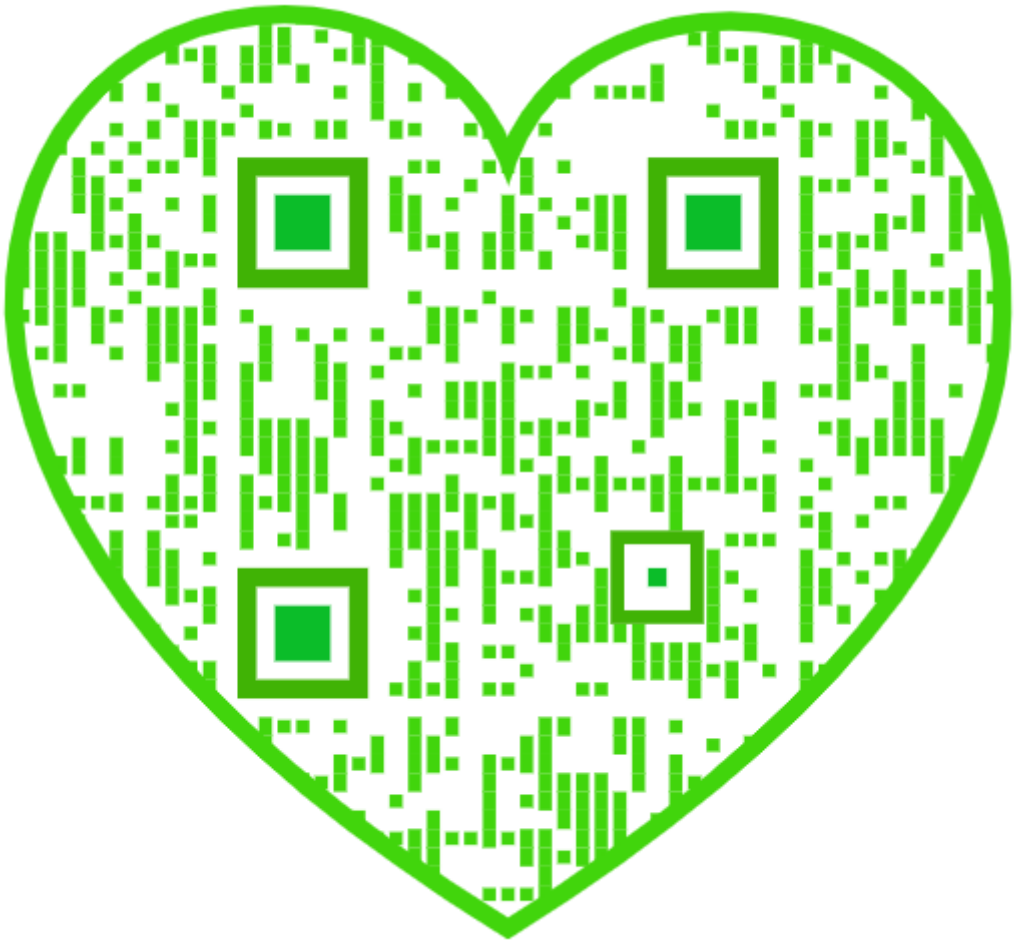
A tunnel two and a quarter miles in length, is in the course of construction, under the town of Liverpool, designed to connect the rail road depot at Edgehill with the North Docks at the water's edge, where the foreign shipping centres. This great tunnel is to be called the Victoria Tunnel, and when it is completed, ships cargoes will be taken direct to the depot at Edghill, without the present heavy cost for cartage. The tunnel under mines in its course many churches, which will be only 60 feet above the roll of the locomotive. The railroad company (London and Northwestern,) have to pay compensation to the owner of every house and building under which the tunnel passes. Two thousand men are employed on this great work, the operations of which are very dangerous, shaking sometimes the foundations of some of the houses above.

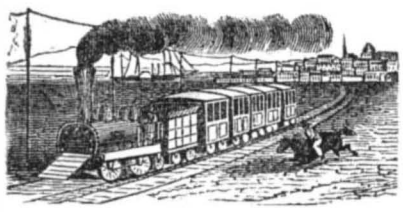
A New Coin.

A new kind of penny has been lately issued from the English Mint. It is a centre of silver with a copper rim, with the inscription, model penny.

© 1848 SCIENTIFIC AMERICIAN, INC







The N. Y. Farmer and Mechanic and the Scientific American.

We seldom journey out of " the even tenor of our way," to repel any untrue or unworthy insinuations, although it is sometimes necessary to do so. We would inform the New York Farmer and Mechanic that it was wrong in the statement made in their last paper, relative to the organic vibrator. We first received information about it from our correspondent in London, and if the editor of that paper desires further proof, we can shew him the original MSS. We have only seen one notice of it in one of our foreign exchanges, which gave us some information relative to the inventor, and that was all. We have sent to London for some of those instruments and by the first of March, we shall be able not only to give the editor of that paper a better account of them, but shew him a *bona fide* article. The majority of notices of inventions that appear in our columns are sent to us by the inventors themselves, although in a number of instances we may publish an account of some things that appear in other papers. Thus the account of Mr. Egan's engine, on the invention page of this number, has been noticed in a western paper, but we did not see it until the proof was read, we having previously received Mr. Egan's letter. Is it not therefore original with us? We have correspondents in every city and almost every village in the United States, one in London and one in Glasgow, and from them we receive accounts of almost every thing new in the scientific world. We are not disposed however to quarrel with the Farmer and Mechanic about its apparent failing, the purloining of original articles from us, as we are perfectly willing to shew that paper light upon any subject. We are only sorry to perceive any contemporary resort to untrue and uncalled for insinuations for any purpose, and we would simply suggest to the editor the propriety of repressing those propensities which have led the Farmer and Mechanic into so much editorial controversy lately, which to say the least about it, does no good to science or mankind, but rather engenders bad feelings and angry recrimination. We hope that we have not displayed such feelings, although first assaulted.

Pork and Beef Packing Establishment.

The packing establishment of D. B. Allen, in Louisville, Ky., has capacity for the slaughtering of from 1,200 to 1,400 hogs, and fifty head of cattle, (rendering the lard and tallow) per day. The whole operation is carried on under one roof. The machinery is capable of producing daily one thousand kegs of prime lard, of a quality so uniform that one keg will serve as a perfect sample of the whole. Such uniformity can be attained only by machinery. Another improvement in this establishment is sheds where all the meat packed is placed under cover from the weather. The erection of this extensive establishment may be taken as evidence, of a rapid increase of the pork business of Louisville

Mysteries and Miseries of New York.

We have never been in the habit of noticing works of romance at all in the Scientific American, but having our attention called particularly to one of the above title we have read it and find so much truth portrayed in its contents that we are induced to recommend it as not only interesting to read, but as useful to those who desire to know the mysteries and miseries of a city like New York. Published by Berford & Co., 2 Astor House, price 25 cents.

Bibles.

The American Bible Society now prints monthly, about 79,000 copies of Bibles and Testaments, equal to *eight hundred and ninety thousand* annually and yet is unable to supply the constantly increasing demand for the Scriptures.

[COMMUNICATION.]

Messrs. Munn & Co.

GENTLEMEN :—In your paper of Dec. 25, we perceive you have a diagram of an " Improved Stave Jointing Machine," purporting to be invented by Mr. H. Law, of Wilmington, N. C., which we think is an invention of our own. We invented and put in operation in April last, a machine for the same purpose, embracing the essential principles of Mr Law's, viz. :—The dogs on an endless chain traversing in curved slots to carry the stave forward to a saw revolving on a horizontal shaft and over a raised bed piece susceptible of being raised or depressed on the side opposite to the face of the saw, so as to give the stave a greater or less bevil. We now have them in operation in this place and have sold them in a number of other places. one of which is Wilmington, N. C., and from which machine we are inclined to think that Mr. Law got his ideas. We intend to apply for a patent immediately, being confident that we can prove beyond all doubt a priority of claim.

Yours, JUDSON & PARDEE.

New Haven, Ct, Dec. 28, 1847.

A Lady Astronomer.

Miss Mitchell of Nantucket, has computed the elements of the orbit of the comet discovered by her on the first of last October, and her results, with those of Professor Pierce and of Mr. Bond, together with a notice of the central passage of the comet over a bright fixed star in the constellation of the Dragon, and of other interesting phenomena in connection with the same, will be prepared by Wm. Mitchell, Esq., the father of the lady by whom the wanderer was first seen, and will appear in the next number of the American Journal of Science.

Horrible Death.

A laborer in the Chemical Labratory, at Roxbury, Mass., met his death under the most painful circumstances, on Monday last week. He was engaged in depositing alum in vats, for the purpose of being melted, and in passing across the vats, walked on a plank laid upon them, but lost his balance and fell into one, filled with about six feet of melted alum. He was speedily drawn out, but lingered in dreadful agony for nine hours, when death terminated his sufferings.

We saw a case exactly identical with this, and we never wish to see another. It was that of a young married man, who fell into an alum vat, and was taken out alive to live in the most horrible torments for twenty-four hours. He drank a continual stream of water and the floor beneath him was completely saturated with the strength and fat of one of the finest physical frames that ever encased a mortal's spirit.

Indigo and Cotton.

By an experiment made by a Mr. Gilmore of Natchitoches, Texas, a result quite unexpected has started some ideas as to a preventative for the worm which destroys the cotton plant. Mr Gilmore planted last spring, within his field of cotton, a piece of ground in indigo. Thinking that it would yield more in indigo than would be necessary to furnish his family, he ploughed a part of it up, and put in cotton. Thus ploughed before it had germinated, he scattered the seed over his cotton land, and many stocks of it grew with the cotton. When the worms began to devour the cotton, he found to his surprise that the stocks near the indigo were untouched by them. They left, or rather kept away from the rows near the indigo patch. The odour from the indigo plant is known to be pungent and disagreeable.

Speculation in Corn.

One of the wisest regulations ever issued by the Emperor of Russia, or by any other sovereign, is the forbidding of land owners and dealers in corn from making *time*-bargains for the sale and delivery of that article. The sale of corn in London, to be delivered on a certain day forward, at a certain price, was carried on during the last season of scarcity to an astonishing extent, and millions of bushels of wheat were bought and sold by parties who never held a grain, but who, when the day of delivery came, paid or received the difference between the price stipulated for and the market price of the day.

A Countess.

The daughter of the celebreted Count Rumford, is now residing in New Hampshire. Gov. Hill, in his account of his farming operations, thus alludes to his titled neighbor :

Our Indian crop (about forty bushels to the acre), grew on an old and accumulated sand bed on the ferry plain lot fronting the beautiful residence of our friend the Countess Rumford. This lady, in the most easy circumstances as to property, has shamed us by doing with her own hands, in the improvement of her grounds, much more labor than we could do with ours, to save any part of the high wages we have to pay for all our farming. Our premises, both in the side and the front come down to those of the Countess; and gallantry, at least, if not respect, to the daughter and sole representative of the philosopher, and perhaps statesman, native of this country, second only to Franklin, would forbid any personal difficulty, even should she in erecting her new fence, come over upon us to the full extent of two feet.

Stand from Under.

The following is an extract from the speech of a Mississippi militia officer : Gentlemen, my mind naturally converts with the pleasurable enigmas to the delightful tapestry of the Oregon Territory. 'Tis there that nature is more than herself, for the soft breezes from the Hego Islands wafts to the listening ear the varied symphonies of the jackdaws, sweet carolling to the melodious epiphany of a thousand crocodiles.

Lumber in Maine.

The Rangor Courier the 18th instant says: " We learn there is no snow in the lumber regions in this state, and that on the upper waters of the Penobscot at least seventy teams with their complements of men are entirely idle and unable even to reach their camping grounds. It is now past the middle of December, about a month later than the teams usually commence their operations. This delay, together with the less number of teams engaged will cause a diminution of the quantity of lumber in the market next season, and must result in an increase of the price of such lumber as does come into the market."

A Hint to Ladies.

The Nottingham (Eng.) Journal states that a singular fraud had been successfully attempted by some lace-workers, who have given to cotton the appearance of silk. Silk thread is dissolved by a strong caustic ley and after the cotton thread has been drawn through the solution thus obtained, it has the gloss and appearance of silk thread, from which the eye cannot distinguish it.

Rainbow.

The New Haven Palladium says that the very rare phenomena of a rainbow in the North at noonday was seen there on Thursday last with unusual distinctness. The prismatic colors were well exhibited, and the circle unbroken.

Thursday, Dec. 16. was the 74th anniversary of the destruction of tea in Boston, harbor. Over 340 chests were thrown overboard and destroyed. The late Judge Thatcher had in his possession a small quantity of this tea, which one of the actors inadvertantly carried away in his shoes.

A man has been convicted at Cleveland of stealing his own property. He had made a bargain to have his hogs fattened on shares, and when he thought " they would do" he stole them away, and killed them on his own hook.

Wild rice, said to be infinitely superior in taste, and far more nutricious than the rice of the Southern States, has been found by the Geological surveying corps, in Iowa, where it grows abundantly.

The Franklin Typographical Society of Boston will celebrate Franklin's Birth Day by a grand supper on the evening of the 15th January.

Very extensive coal mines have been opened in Chili ; which will supply coal depots for our steamers in the Pacific.

The flour trade of Canada West has increased eight fold during the last two years.

New Rolling Mill.

We learn from the Wilmington Journal that Messrs. McDaniel & Harvey, Iron merchants of that city, in connection with Mr. J. J. McCollough, have recently erected a substantial Rolling Mill, at North East, Md. The works are to be chiefly engaged in manufacturing sheet and bar iron, and are now in active operation. Some samples of sheet iron have recently been sent to New York, and for strength, durability, and neatness of finish, cannot be exceeded by any in the market.

Prices in Mexico.

An officer, writing from Mexico, says every thing is high in that city; he paid $40 for a new coat, a pair of shoes cost $4, a pound of tea $5 and every thing in proportion.

Mr. Emerson has commenced a course of lectures at Manchester, England, conceived apparently, somewhat after the manner of Carlyle's Hero Worship. The course is on " Representative men." The subject of his introductory discourse was the " Uses of Great Men;" and it was to be followed by lectures on Swedenborg, the mystic; Montaigne, the skeptic; Shakspeare, the poet; Napoleon the man of action; and Goethe, the man of letters.

The National Intelligencer says, we regret to learn that during the heavy gale on Tuesday night, some of the iron braces of the tall mast which surmounts the dome of the capitol and supports the large gas lantern, gave way, and in falling broke the glass of the skylight. Fortunately, the gale lulled soon after, or it is feared the mast and lantern would have gone by the board. More than one has predicted its downfall.

The Pittsburgh Gazette says that Captain Schenley, and Mrs. Schenley of London, have instructed their agent to offer ten acres of land to the Western Pennsylvania Hospital Society, being included in the village of Croghansville, now in the 9th ward of the city of Pittsburgh.

We see it stated in some of our papers that Mr. Joseph Cunard " the celebrated Mail Contractor," has stopped payment, under great liabilities. The Hon. Samuel Cunard, of Halifax, N. S., is the Royal Mail Contractor. Mr. Joseph Cunard of Miramichi, N.B. has no connection with the steamers.

Never be afraid to do right because somebody will laugh at you. Never do wrong because somebody will applaud you. Never be ashamed of an old hat, if it is well brushed, and the best you have.

A large brick house in Clarmont County, Ohio, situated on the river, has fallen down, crushing seventeen persons to death. Several others were seriously wounded. The building was owned and occupied by Fourierites.

The heart never accuses a charitable act, although it often pines over an ungenerous one. Should we not then practice those virtues which bring happiness and refrain from those acts that cause grief.

The Fire Engine of Company No. 40 of this city, has thrown a stream 144 feet perpendicular height out of a nozzle of seven-eights of an inch.

Ten or fifteen years ago, six young men, one by one, left their native county, (Fayette, Kentucky,) in search of a livelihood abroad. They have all met at Washington, as members of the present Congress.

In Baltimore, the past year 1,959 new houses have been erected, the value of which is upwards of $2,600,000.

A residence building at Quebec for the Roman Catholic Bishop, will cost, it is said 200,000 dollars.

The reception of Gen. Taylor cost the municipal authorities of New Orleans more than $9,000

The New England Non-resistance Society commenced its annual session in Boston on Thursday last.

The Licking Valley Railroad Company are cutting a tunnel through the mountain and have reached several valuable veins of coal.

© 1848 SCIENTIFIC AMERICIAN, INC

Western Correspondence.

CINCINNATI, Dec. 7, 1847.

GENTLEMEN :—As Southern Manufactures seem to be attracting your notice, I will give you a little note of some West, in a region where the first has just made its appearance, to wit : on the Ohio River, below Louisville, in Kentucky, one hundred and sixty miles distant. Here a magnificent building five stories high, well proportioned, and shewing as near as I could count them between ninety and one hundred and twenty five light windows on one side, and the steam puffing away give signs of a busy scene within. The building is covered with slate. Around it seems a handsome village of white cottages, all new as if they had sprung into existence yesterday. There is also a steam saw-mill, and our boat called at the coal landing near the factory, and took in tow a coal boat having coal on its deck, for which we paid six cents per bushel, or about $1,68 per ton. This coal is becoming a general steam boat fuel, and I learn the demand cannot be supplied. I learn there is a very extensive coal mine here, the place is culled Boni arbor, and is owned by a chartered Company, called the Bonharbor mining and Manufacturing Company, who have a very large body of land connected with it. One of the owners came on board at a little town just above and travelled with us to Louisville. From him I learnt that great pains had been taken to get up the establishment well with all the modern substantial improvements in machinery, and that with hands newly learnt they were now doing good work, and making goods equal if not superior to any in market. The building I am informed, is calculated for seven thousand spindles is only partially filled, and will be gradually filled as hands can be learnt, and the machinery put up.

The calculation is to make this a western Lowell, they say they have a cheaper power from steam, than any water power ; as evidence, one hand can mine more coal than is used by their large double engine and one man is fireman and engineer. The cost of getting the coal from the mines, into which the railroad runs, as the coal is mined out of the side of a hill, is not one quarter of a cent per bushel.

Surely with such cheap power, on the banks of the Ohio, there must be great reason to expect the rise of a large town. The owner aforesaid informed me that he estimated the cost of delivering cotton from the plantations to their factory the same as that of delivering it at New Orleans. The advantages he estimates over the Northern manufacturer are freight of cotton to Boston and Lowell, return freight, of goods to New Orleans, and up the Mississippi, and Ohio, with baggage, storage, commission, insurance, damage, and so forth and so forth constituting a charge of one dollar per hundred and one and a half returning making fifty dollars per ton, and when in full operation they expect to manufacture a ton and a quarter of cotton per day, which in a years work would be a saving of near twenty thousand dollars. That again being along side of the cotton, they can, at any time, in a few days obtain a supply, and make their goods meet their expenses. This is an immense saving of expense ; as one evidence, he named, that his last purchase of a very prime article of cotton was at six and three quarters cents his previous not two weeks before was at ten cents. He only bought from day to day, while cotton was up, but laid in large supplies while it was low. He thinks his proximity to market for buying cotton, and selling goods, fully equal to one cent per yard beside the carriage. This seems rather a heavy estimate it true where five or six thousand yards per day are made, the gain is very great, and when added to the saving in freight, seems enough to attract any amount of capital. Why such an enterprise should have remained to this late day is strange.

A revolution in manufacturing must occur where such advantages exist. Brother Jonathan in New England has hardly greater advantages over John Bull, than brother Jonathan of the West has over him. Her provisions of all kinds are at less than one half Eastern cost.

From Pittsburg I may give you another epistle. A TRAVELLER

Southern Correspondence.

DEAR SCI.—The rain almost without intermission continued to fall during four days, consequently the rivers forming branches of the Ohio, swelled that river to an almost incalculable inundation all along the banks of the river. The Monongahela and Alleghany rivers meet at the fort at Pittsburg, forming the mouth of the Ohio. All the villages and towns situated on the banks of the river, were flooded, Steubenville, Wellsburg, Martinsville, and around Wheeling. Cincinnati was in a terrible condition, and no freshet has ever occurred to the same extent since 1832. A sad catastrophe took place on Saturday morning while the ferry steamer Island Packet, was preparing to leave the island side of the river crossing over to Wheeling, her boilers burst. and sad to relate, a son of Mr. Clark's (a very respectable farmer on the Island, a native of Edinburg, Scotland,) was lost in the river, being blown over. Another individual, whose name was unknown, was also lost.—Neither bodies have yet been recovered. The cause of this sad accident is said to have been the want of water in the boilers.

We have had a great freshet along our river, which, thank God, has now fallen, altho' I am sorry to say, not without many sad evidences of its destructive effects.

BRAMBLE BRAE.

Lewisburg, Ky., Dec. 15, 1847.

Spontaneous Combustion.

The Springfield, Mass., Gazette relates the following singular case of spontaneous combustion which is not a little interesting to the lovers of sciontific research :—

"A few rods north of the Armory on the hill is a deep hollow or dingle, down the bank of which the waste dirt of the shops (consisting of old woollen rags, and cotton waste partially saturated with oil, particles of iron, &c.) has from time to time for a long period been thrown, until a large quantity of it has accumulated. This mass of rubbish some six weeks since took fire spontaneously, and has been constantly burning since, notwithstanding the late powerful and heavy rains. Wednesday last being the regular monthly meeting of the Eagle Fire Co. No. 1, Capt. Tower determined to try his skill with the devouring element. After throwing on to the burning pile vast quantities of water, which seemed to have the effect to concentiate the heat rather than quench it, it burst forth from the uppermost point, ejecting fire, steam and smoke to a considerable height, giving us a beautiful miniature volcano. It still continues to burn, bidding defiance to the clouds of heaven and Eagle Co. No. 1. On the bank immediately over the burning pile is a magnificent elm, beneath the shade of which in bye gone days, many a workman has repaired to refresh himself from the beautiful stream rippling down the bank near by. This burning mass seems to have embraced the roots of the tree, robbing old Sol of his power, warming it into summer life and expanding its buds almost to bursting, and in all probability will soon cover it with a beautiful foliage."

The Happy Girl.

Ay, she is a happy girl—we know by her fresh looks and buoyant spirits. Day in and day out she has something to do, and she takes hold of work as if she did not fear to soil her hands or dirty her apron. Such girls we always love and respect wherever we find them in a palace or a hovel. Always pleasant and always kind, they never turn up their noses before your face or slander you behind your back. They have more good sense and better employment. What are flirts and bustle-bound girls in comparison with these ? Good for nothing but to look at ; and that is rather disgusting. Give us the industrious and happy girl, and we care not who worships fashionable and idle simpletons.

Reprove not Angrily.

Chide a man for being angry when he is angry, what will you get by it, save some of the foam of his overflowing rage cast upon you ? As God is said to have come down in the cool of the day to reprove Adam, so likewise we should come in the cool season of a man's passions, when all is quiet and temperate within, for then there is the greatest probability, of rightly influencing them.

For the Scientific American.

Chemical Formula.

There are what are termed equivalent ratios of chemical bodies which are expressed by numbers. As the mathematician is guided by measurement, the chemist is guided by weight—the former measures, the latter weighs. This constitutes one difference in the method of research pursued in the two sciences. Hydrogen gas being the lightest body in nature, and combining in the smallest proportion by weight with other simple bodies, it has been taken as a standard of comparison. Oxygen has been taken as a standard by some and is represented by 10, and when hydrogen gas is compared with it in equivalent ratio, it is represented by 1.25, the proportion in which it combines with water. If decimals be used, such as 1000, it is thus explained in equivalent ratio ; water is composed of one part hydrogen to 8 parts oxygen, therefore,

Oxygen	:	:	.889
Hydrogen	:	:	.111
			1000

There is a great difference between chemical and mechanical mixtures, and yet the two are embraced in the science of chemistry. A mechanical mixture signifies the mixing of one or more substances, such substances being capable of mixing together in different quantities, such as our atmosphere, which is composed of 79 parts nitrogen by measure and 21 oxygen, but these two gases will mix in other quantities. But a chemical mixture is definite in its proportions always—no alteration. Pure water is the unity of 1 part of hydrogen to 8 parts of oxygen always, and all the acids are definite in this relationship. Thus nitric acid is composed of

Oxygen gas	:	:	.858
Nitrogen	:	:	.142
			10.00

and suppose there were the double of oxygen added to this, it would be found that the union of these two gases to form nitric acid would just be in the proportions above ; this then is a chemical mixture, while a mechanical mixture is like mixing a drop of alcohol in a glass of water. All salts are combinations of two or more bodies, therefore always in definite proportions, never otherwise, and this is very requisite information to any person.

In making out a chemical formula by decimals, it should be done thus : Nitric acid is composed of 1 volume of nitrogen or azote, and 2½ of oxygen. The relation in which these two stand to one another is 2 of azote to 5 of oxygen ; therefore the total is 7 parts.—Take then a volume of this acid represented by 1000 and divide by 7, thus—$\frac{1000}{7} = 142.6$

Then 142 6 each part, and azote being 2 and oxygen 5 parts, the result of the formula is—

Azote	2X142.6=285 5-7
Oxygen	5X142·6=714 2-7
	1000

The above may appear dry information, but it is positively necessary to all who would wish to be acquainted with chemistry, and to make out a chemical table of equivalent ratios.

Cure for Rattle Snake Bites.

A correspondent of the Nantucket Inquirer saw a man in Georgia who was bitten by a rattlesnake in the foot, and saved his life by taking spirits of turpentine in as large doses as he could swalow them. The poison had advanced up his leg, and gave him excruciating pains before he began to take the turpentine.

We have seen the account of another cure said to be effected by drinking alcohol. It is well known that the poison is more fatal according to the length of time that the reptile has abstained from food, and much depends upon the physical state of the person or perons bitten. Olive oil is said to be good, when rubbed hot on the wound and taken inwardly at the same time. Probably the poison is prussic acid.

By a Report of the New York Charitable Association no less than 2,500 people have received relief and assistance from it last year. The same report brings more and more to light the miserable and uncomfortable dwellings in which our laboring classes reside. A great improvement is demanded.

Chart of Health.

A complaint of the heart, growing out of an inordinate longing after something difficult to obtain. It generally attacks persons between the ages of 15 and thirty ; some have been known to have it at the age of sixty Symptoms—absence of mind, giving things wrong names, calling tears nectar and sighs zephyrs. A great fondness for poetry and music, gazing on the moon and stars, toothache, loss of appetite, neglect of business, loathing for all things, save one ; blood-shot eyes, and constant desire to sigh. Effects—a strong heart burn, pulse high ; stupidity, eloquent eyes, sleeplessness, and all that sort of thing. At times imagination bright, bowers of roses, winged cupids, and battered peas ; then again oceans of despair, racks, tortures, and hair-triggered pistols. Cure—to get married.—*Ex.*

Surgical Operation.

About three months ago aays the Albany Knickerbocker, a little child of Mr. Thomas Gale, 32 Water street, swallowed a cent, or, rather partly swallowed it, for it has remained in its throat ever since.—Numerous physicians have been called in, but without producing any relief whatever—in the mean time the little sufferer was gradually wasting, and in a few weeks more, if relief had not been afforded it would unquestionably have gone to the tomb. Fortunately, Dr. March, the most eminent surgeon in the country, was called in yesterday, and in less than two minutes removed the painful obstruction, and placed the little fellow once more on the road to health and longevity. The instrument the Doctor made use of, was a long slender probe with a hook to it.

Queer Description.

A Western editor says "A violent gale has just passed over us, and nearly destroyed one half of our beautiful village, and turned a great number of our inhabitants homeless and houseless into the streets—*many of our old garrets were filled to suffocation by people with their gable ends out.—Ex Paper.*

The above description of a gale, is a mate to the description of the city of Albany, which we remember to have seen in Brook's or Spofford's or some other old Gazateer, in which it was stated, that a number of Dutch houses, and a certain number of inhabitants, all standing with their *gable ends* to the street.

French and English Row at a Railroad Meeting

At a meeting lately held in Paris consisting of the stockholders of the Bolougne Rail Road there was very near a fight between the English and French stockholders, There were 516 French votes and 417 English opposed to each other. The French endeavored to resist the attempt of the English to address the meeting in their own language.

Political Prudence.

Wise men say nothing in dangerous times. The lion called the sheep to ask her if his breath smelt; she said, 'Aye,' and he bit off her head for a fool. He called the wolf, and asked him. He said 'No,' and he tore him to pieces for a flatterer. At last he called the fox, and asked him. 'Truly, said he I have a cold and cannot smell.'

Jenny Lind.

Mr. Donald McKay of East Boston has contracted to build a ship of 600 tons to be named the Jenny Lind. She is intended for the freighting business, and will hail from Boston.

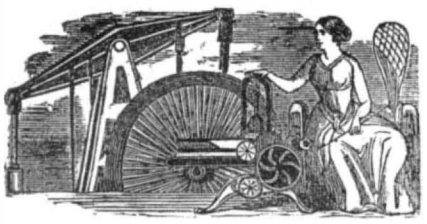
Barzillia Howard of Portland has recovered $2,500 damages of a Dr. Grover for mal practice.

A Christian should be like a river, which fertilizes while it runs—carrying ships, and all that floats upon its bosom, along with it to the ocean.

Without female society, it has been justly said, that the beginning of men's lives would be helpless the middle without pleasure, and the end without comfort,

"The last word" is the most dangerous of infernal machines. Husband and wife should no more fight to get it than they would struggle for the possession of a lighted bombshell. *Punch.*

© 1848 SCIENTIFIC AMERICIAN, INC



New Inventions.

Air Engine for Railroads and Common Roads.

Mr. Evan J. Purser, of Philadelphia, proposes to construct an engine to be propelled by heated air so as to combine a greater amount of power with more speed, having less weight, and therefore less resistance than the common engines, and which, as he says, can be applied successfully to railroads and common highways. He should like to have assistance in the construction of his engine, as he is but a working mechanic. Here is an opportunity for some of the Inventors' Institutes to do a good turn and exhibit a true philanthropic spirit. Let any of the Secretaries of said associations direct a communication to Mr. Purser, No. 184 Chesnut street, Philadelphia, and they will obtain all the desired information.

New Foul Air Burner.

Mr. Charles Clinton, of Middletown, Orange Co. N. Y., has invented a Stove which feeds combustion only by the most rarified air in a room, instead of the most condensed strata of cold air and thereby a great saving in fuel is effected and health promoted, as it acts as a ventillator. An elevated pipe is added to the stove, which feeds combustion by a current descending through it under the bed plate of the stove by a flat conduit and entering in front of the stove, by an opening below the slide of the ash pit.

Portable Flouring Mill.

We see it stated in one of our exchanges that a Mr. Freligh, of St. Louis, Missouri, has invented a Flouring Mill to be worked on board of steam boats. This machine is said to adapt itself to any angle of the boat, and the burrs and hoppers suspended like a ship's compass. This is all we can say about it and it is inexplicable enough.

New Method of Propelling Vessels.

We understand that Mr. A. Taylor, of this city, is about bringing before the public a new method of propelling steamboats, on what he designates, the wind-mill principle, in contradistinction to the undershot wheel, as now generally in use. He confidently expresses his opinion that a greater speed may be given to the same vessels with much less power and expense of construction by this new application than can be obtained by paddles or floats on the periphery of the wheels. In connection with this invention he intends bringing forward another important improvement in the steam wheel.

New Rail Car Spring.

Mr. H. T. Hyde, of Troy, N. Y., has invented a new spring to be connected with the axles of the wheels of locomotives and cars so as to enable them to move with greater ease in turning curves. The spring is made of one piece of fine flat steel folded or bent waving up and down, which being connected with the axle allows a sufficient play to the outside wheels by extension, while the inside wheel by the contraction of the spring on that side, although it may thereby slide somewhat yet there is less friction than biting on the rim of the wheel and less liability of running off the track.

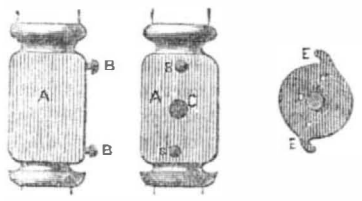
Improved Foot Stove.

Messrs. White and Walbridge, of Barre, Mass, are the inventors of a very neat, safe, and economical foot stove. It is simply a tin box filled with boiling water and corked tight. It will keep the feet warm for a whole day's ride. The bottom is of pine wood and the whole covered with very handsome carpet, stuffed with cotton, good non-conductors, so that it retains its heat for a long time. They are oval shaped, very convenient, and easily carried, and sold only for $12 per dozen, and an inferior kind at $10.

An Air Bed.

Mr. A. J. Goodenough, of Yorkshire, Cattaraugus Co. N. Y., has invented a new kind of bed to supersede the use of feathers entirely, and is somewhat peculiar. He unites two boards the length of the bed by a strip of leather so as to fold on the top of one another and unites these boards to iron legs which have hinges for the purpose of clasping the boards and are braced together by portable slender iron rods. He uses double sheets of india rubber air tight for a bed extended and fastened to the boards described, by loops over pins. By a tube communicating with the inside of the india rubber bag bed it can be filled with air and expanded, buoyant and soft as Russia down. The material of which the bed is composed is made strong enough to stand considerable atmospheric pressure, not even fearing the gravity of the Kentucky giant. This bed, for which the inventor has taken measures to secure a patent, has some other peculiarities for the regulation of pressure on the surface. It has at least one grand advantage in economy and health, viz. no bad smell from impure feathers and it can be emptied and filled with little expense.

Improvement in Bedsteads.



The above engraving represents an improved method of joining the rails with the posts of bedsteads. It is well known that it is of the utmost importance to have close joints in all bedsteads and it is equally important and desirable that bedsteads should be so constructed, as to be easily and speedily put together in all their parts, and if possible by one person. The bedsteads that are in common use and which are allowed to have the closest joints, are made by a screw on the rail and a thread in the post and the rails screwed into the posts. The joint is undoubtedly close but the screws often get out of gear and when this is the case the bedstead becomes useless. By this plan there is a more close joint than by the screw, while it can be put up by one person, and it never gets out of order. The round piece on the right is a small iron shield attached to the rail by screws, the end of the rail represented as passing through the opening in the centre to enter opening C, in the bed post A of the middle figure. E E, are two cleets which, when the rail enters C, catch B B, and hold tightly the rail and post together, while the shield is squeezed as close to the post as if it were united to it, and in this manner there is not the least space left open between the rail and the post. B B, is a side view of the pins or knobs, made of iron, that E E, catch into. A small clamp can be made to brace the back of E, so that by the greatest pressure, the cleets E E, never will be moved out of place.

Mr. C. B. Morse, of Rhinebeck, Dutchess Co. N. Y., is the inventor, who is going to secure the same by application for a patent. He is now manufacturing them at the above place and they can be made cheaper than the screw kind, an important consideration. He is also the inventor of another kind of joint for bedsteads, but as the one in the engraving is the cheapest and as we think, the best, it will interest the greatest number.

New Invention—Electro Magnetic Engine.

Mr. James P. Egan, of Dresden, Muskingum Co., Ohio, has just invented an Electro-Magnetic Machine, which consists of series of magnetized plates, of the requisite diameter. which are connected together by screws, and so constructed as to allow the plates to be contracted into an almost solid mass, or to be drawn out to a given length. These plates are called a "*Contracting Magnet*." The alternate with solid metal, and form a sort of *piston*, which is worked in a *helix*, answering to a cylinder, and which, being duly charged with the electric fluid, forces out the piston, which shoots itself back again by its own magnetic contracting power, thus giving motion to the machinery, which can be built of sufficient force for any of the purposes to which steam is now applied. Mr. Egan's machine requires no boilers, no fuel, and but little attendance, and it is said can be built at a cost, and worked at an expense very far below any steam engine.

Mr. Egan also writes to us that upon the principle of his contracting magnet, he can construct a perpetual motion, at least the most perfect and durable machine deserving such a title.

Locomotive Improvement.

Mr. William G. Hennies of Pottsville, Pa., has invented a new kind of grate for locomotives which has received the commendations of several scientific gentlemen connected with locomotive operations. An endless grate passes over rollers at each end of the fire box, and ratchet wheels affixed to them enables the firemen to make the grate revolve at will, either way. By a simple arrangement of a lever, one of the grates may be raised or depressed, so as to give greater space and facility for throwing the clinker out upon the track. The adjustment of the parts is very simple, and they cannot be thrown out of proper working order.

The great difficulty hitherto experienced in burning coal in locomotives, is that the great draft ignites the coal too rapidly and melts it into a mass of clinker on the grate, by which all the draft is soon excluded. The intense heat is expended on the sides of the fire box, and causes its speedy destruction. By this invention the coal may be distributed at will and freed from clinker, while by the forward movement of the grate it has a tendency to throw the body of the coal into a triangular form and permit the fresh coal at the top to find its way down toward the grate. The grate bars too may be kept comparatively cool by the change of surface effected by their rotary motion.

New Topsail Reefer.

A model of an invention for reefing topsails was exhibited last week at the Exchange Reading Room, Boston. By it the sail is clewed nearly as close upon the yard as if it was reefed. The halyards are worked by the crew from the deck. If not too complicated, it may be very useful in squalls and be a labor saver for Jack.

Tribute to American Mechanical Skill.

The following is the Report of the Austrian Institute, made upon the Combination Lock of Messrs. Day & Newell, of this city:

The President of the National Mechanics Institute of Lower Austria, to Mr. Newell, of New York:—

Sir—The Institute of Lower Austria, at its last monthly session, has passed the unanimous resolution to award to you its gold medal as an acknowledgment of the uncommon superiority of the combination lock of your invention; and this resolution was ratified in its general convention held on the 10th inst.

Whilst I, as President of this Institute, rejoice in seeing the services which, by this invention, you have rendered to the locksmith's art, thus appreciated and recognized, I transmit to you, inclosed, the said medal, together with the documents relating to it, at the same time availing myself of this opportunity to assure you of my esteem.

Collorado Mansfield.

Vienna, May 31, 1847.

Substitute for Ether.

Dr. Simpson of Edinburg has discovered a new substance named chlorophine, which has all the good qualities of ether and none of its evil. It has been used very successfully in England.

Some interesting experiments have been made with this substance at the Baltimore, Md. College of Dental Surgery which have given great satisfaction.

A company is about to be formed in this City, for an air-tube to be laid between this City and Boston, for the transportation of messages and parcels, in connection with the Air line Railroad. The air is exhausted out of the pipe and the parcel to be sent either to New York or Boston is fitted close in the tube and the air let in behind, when away through the region of vacuo the parcel wings its onward way.

INVENTOR'S CLAIMS.

Corn Cob Mills.

By Amory Fisher of Tuscaloosa, Ala. Improvement in Mills for grinding Corn in the Cob. Patented, 28th August, 1847. Claim.—Having thus fully described the manner, in which I construct, array, and combine the respective parts of my mill, what I claim therein as new, and as an improvement on that patented by James M. Miller, is the combining of the knives, or crushers, with the mill stones in the manner set forth, the upper stone being stationary, and being provided with a feeding opening, or openings B, and a cutter or crusher D, situated in the cavity A, made in said stone to admit the revolving knives affixed in the stationary stone. These parts being combined, arranged and operating in the manner and for the purpose set forth. I also claim the manner of arranging the hoop in such a mill, in order to insure the ready delivery of the ground stuff. I do not claim either of the devices in my first claim individually, but I do claim them in their combination as producing the usual results herein made known.

Tanning.

By Alexander Turnbull, of Rouel House Tannery, Blue Anchor Road, Bermondsey, in London, in the county of Surrey and kingdom of Great Britain. Improvement in Tanning. Patented in England, 26th of Sept. 1844—in the United States 28th of August '47. Claim—I think it necessary here to state that I do not claim the principle of tanning Hides and Skins by sewing them into bags, nor by simply filling them with liquor; but, what I do claim as of my invention, and desire to secure by Letters Patent, is, First—the discovery of the means of extracting the lime with which the hides or skins are impregnated in removing the hair by the use of sugar or any other sacharine substance, whether obtained from the sugar cane, honey, beet roots, turnips, potatoes, the maple tree, or other vegetable substances; all of which is fuly set forth and described in the specification. Second—I claim the discovery of the law of Endosmosis and Exosmosis to the purposes of tanning with the materials and in the manner before described in the specification, and shown in the drawing, or in any way wherein the hide or skin can be placed between the fluids containing tanin or tanic acid of different specific gravity.

Fountain Pens.

By Moses F. Hait, of Livingston, Alabama. "Improvement in Fountain Pens." Patented September 11th, 1847. Claim.—What I do claim as my invention and desire to secure by letters patent, is the combination of the pen with the fountain in such a manner that the tapering part of the nibs, of the pen serve as as valve or valves to the orifice or orifices, which being opened by the downward pressure in writing, allows the ink to flow which at the same time the ink is prevented by the depression from being drawn up between the pen and the tube as is above substantially described.

Scrubbing Brushes.

By Robert M. Bicknell & Charles J. Abel, of Philadelphia, Penn. Improvement in the Scrubbing Brushes. Patented, 5th September 1847. Claim.—What we claim as our invention, and desire to secure by Letters Patent, is the manner of manufacturing the fibres of the piassaba, into brushes, viz: Softening the same until they can be bent double without breaking, folding the branches thereof at their centres, and inserting and securing the same, while in a wet or moist state, in the respective holes in the brush stocks by means of a card manufactured and prepared substantially in the manner and for the purpose herein set forth. We also claim the manner of manufacturing and preparing the card substantially as herein described, for the purpose of enabling us to work the bunches of piassaba in a wet or moist state as hereinbefore set forth.

A smooth sea never made a skillful mariner, neither do uninterrupted prosperity and success qualify man for usefulness or happiness. The storms of adversity, like the storm of the ocean, rouse the faculties, and excite the invention, prudence, skill and fortitude of the voyager.

© 1848 SCIENTIFIC AMERICIAN, INC

NEW YORK, JANUARY 1, 1848

A Happy New Year.

It has now become customary for almost every newspaper and periodical in our land to assume the garb of a minstrel on the first day of January and wish their patrons and subscribers *A Happy New Year*. But as we are wretchedly clumsy at stringing up all kinds of rhyme, but roast and toast, and now and then a turkey hen, or such good cheer as every year falls to our lot, as hat, or coat, or boots or shoes—ah, too good news. Then pray excuse our new year rhyme for this one time, and accept in plain phrase our sincere wishes for your welfare and *a happy New Year*, and may all be as fortunate at the end of 1848, as a jolly tar, who told a friend of ours when crossing the Brooklyn Ferry a short time ago, that he was "just returning from a twelve-months' cruise with an arm-full of good things to comfort the heart of his old woman, and *a pocket-full of rocks* beside."

What to do with part of the Smithson Bequest.

By accounts from Washington we learn that the Smithsonian Institute is in the course of erection, and that it is to be a large and elegant Gothic structure. We hope that the edifice will be an honor to America and a noble monument to the generous donor, who with prophetic eye looked down the stream of time and beheld Columbia as the centre of the civilized world, the *fixed star* of our terrestrial system, from whence should issue beams of intelligence to illuminate the nations of the world. Such a vision undoubtedly, was presented to the mind of Smithson when he bequeathed his fortune to establish an Institute in the United States, for the purpose of propagating useful knowledge and the advancement of true science. We trust that in future not one dime of this bequest will be diverted from this sacred purpose, and we would give much were we able to say such had been the case during the past.

As part of the funds of this Institute are to be devoted to the publication of works for the advancement of science, we have seen, and have published an account of the first work that will, it is said, issue from the Smithsonian Press. The work is to be on American Archæology, and to contain splendid engravings of Indian antiquities—the discoveries made in the ancient mounds which are scattered over our land. We hope that such a work may do some good, but so far as true science, and the majority of our people or the people of any other nation will be benefitted by it, we are more than doubtful. We believe that although thousands upon the top of thousands of dollars may be expended upon it to make it the popingjay of curious cabinets, or proud libraries, yet after all, sensible men will point expressively to the work and say, "such are the inconclusive results of antiquarian zeal and research."

We have a far better work to propose for publication by the Smithsonian Institue, viz. a history and full description of all inventions patented in the United States. Said work should embrace minutely every specification and all the drawings of the inventions, and have an introduction that would be an elaborate history of physical science up to the present day. There is no work so much needed at the present moment as a work of this nature, and such a work would be an honor to our country and a benefit not only to ourselves as a people, but a benefit to the people of every other nation—a benefit not only to the present generation but to generations yet unborn. Such a work would be a laboratory of, and a monument to inventive genius. It would be the best standard work, with the exception of the sacred writings, ever published in this, or any other country, without a single exception. Let the managers of the Smithsonian Institute commence the publication of this national work, and they have the material for it at their very door, without travelling through Phœnician, Egyptian and Assyrian history, in analogical research to prove the absurdity of the lost *ten tribes* of Israel having been dwellers either in Chilicothe or Canajoharie. Let the managers of that Institute we say, publish such a work as we have suggested and we venture to predict that it will "more than arms admiring nations to Columbia gain." It would open up to the world a vast laboratory of American science, and it would confer a greater boon upon our people and a greater impetus would be given to progressive science by it than by any other work ever published. Copies of it should be sent to every nation, and a splendid copy should also be presented to the College where Smithson lectured and where Smithson learned.—Copies of it should be sent to every public library in the United States, and were it possible, and we think it is, it should be sold at such a price that the majority of our mechanics and artisans might be able to purchase it. Such a work would be a real treasury of knowledge, and at the present moment there is a vast amount of just such knowledge as our people want, buried up in the Patent Office, where but few can have access to it. It would save thousands every year to our country, both in time and money, as many expend much of both in re-inventing something already discovered, but of which they are not aware. It would also lessen the labors of the Patent Office, and above all, it would be the opening of that stream of American knowledge, which from Columbia shall glide onward to other days, swelling into a majestic river that shall bear from thence to every distant shore the *messages* of true science from a pure and transparent fountain.

Effects of not Advertising.

The Pittsburgh Day Book, tells us of a firm in that city, who, after settling up their accounts for the past year, found that their loss amounted to over ten thousand dollars, and they were forced to close. Their business was conducted on the strictest principles of economy, but the secret of their ruin is soon told—they never *advertised* in the newspapers.

One inventor in this city lost six hundred dollars in six months, just by saving ten dollars for an advertisement in the Scientific American. Advertising is the only way to let the public know where to find the article they want to buy. Those who have machines and machinery for sale should know where to advertise.

An Important Enterprise.

The people of Canada and Northern New York are earnestly discussing the project of connecting the waters of the St. Lawrence and Lake Champlain by a canal, to start from a point near Montreal, and enter the river Richlieu, which empties into the Lake. The canal can be built in one year, at an expense not exceeding five hundred thousand dollars, only two locks of eight feet each being required to overcome the descent. This would open a complete water communication from the Upper Lakes to Burlington, and thence a communication by railroad to the Atlantic coast, would open to Boston the riches of the Western world The Commissioners of Public works in Canada have been instructed by the Governor General to procure a full and complete survey of the country, lying between the St. Lawrence and Lake Champlain, with a view to determine the best line for such a canal. The whole matter is one of deep interest to our citizens, and should be faithfully canvassed by them.

Foreign Telegraph.

By our foreign exchanges we learn that on the 15th Oct. last, an electric telegraph was opened on the Baden Railway, Germany. It is called Haighton's Patent Gold leaf telegraph. It reports 30 letters in a minute and uses only one wire, and the appartus is said not to be as expensive by seven-eights the price of any other. Thirty letters is nearer the mark than those that have boasted of hundreds.

Rival companies of Telegraphers have already planted their posts at Erie, Penn.

Electro-Gilding.

PART IV.

DEPOSITION OF OXIDES ON METALS.

This is a species of deposition called *metallo chromes*. A saturated solution of acetate of lead is prepared and poured into a shallow vessel in which has been placed a highly polished steel plate. A wire from the positive end of a series of four of the single cell batteries, engravings of which have been already given, is made to touch the plate. Then if a wire from the negative series is held in the solution over the plate, a small tinted circle makes its appearance on the polished surface beneath the wire, and rings of color of the most brilliant hues rise from the centre and expand to the circumference. The colors commence with silver blond and progress onward to fawn color, and thence through the various shades of violet to blue, then through pale blue to yellow and orange, thence through blueish green and green, thence to reddish yellow, and then to rose color or red, the highest color in the chromatic scale. Colored figures of varied character are obtained by modifying the shape of the electrode connected with the negative end of the battery, using instead of a point, other patterns, such a disc or cross. By the employment of a large disc and small steel plates and by a great deal of care, a uniform tint may be given to each plate and the scale of forty four different shades. All the plates must be of the same thickness so that when properly adjusted they will remain at the same distance from the disc. Spoiled plates are cleaned with emery paper. The best patterns are obtained by cutting a card and placing it on the plate beneath a convex disc. These colors arise from very thin films of oxide of lead deposited on the steel plates, and are something like the analysis of light by soap bubbles and of no practical use, being only beautiful experiments.

MISCELLANEOUS ELECTROTYPING.

A patent has been taken out in England to produce pipes and boilers of copper through the agency of Voltaic Electricity, by the deposition of copper on moulds of clay or wax, or plaster or lead or other substances fusible at a lower temperature than copper. Almost any thing that can be coated with plumbago will serve for a mould. Busts and statues of plaster that have to be exposed to the weather may be coated with copper and varnished for preservation. Busts or small figures of wax may thus be preserved and with great advantage, and busts and statues may be made by the electrotype in solid metal, by first coating a bust with thin copper and embedding the whole in plaster of Paris, and then using the plaster as mould by destroying the original bust and using the plaster mould as a decomposition cell.

Engraved copper plates may be readily multiplied by electrotype. The plate must be used in place of a mould and before it is used for deposit it should be heated and rubbed over with beeswax, and by continuing the heat the plate must be rubbed clear of the wax by a piece of soft cotton, or blacklead may be used in place of the wax. The deposit on the plate is to be used as a mould by coating it as we have described heretofore, and many copies may be taken from this mould in all points equal to the original.

Metallic cloth can be made by the electrotype by laying stout linen or cotton cloth very evenly on plates of copper and placing them in a copper solution (sulphate of copper) and connect all with the negative pole of the battery, and by placing a sheet of copper opposite connected with the positive pole, decomposition takes place and the metal in seeking to reach the plate insinuates itself into the interstices of the cloth and thus forms a metallic sheet.

Every day is bringing forward something new in this department of science, and every new discovery teaches us that that we know really little about it yet. This science presents before us a boundless ocean on which we may float our barks in extensive voyages, or gather up the pebbles or shells that are strewn along the golden sands. Although it has been impossible to be minute and elaborate, yet we presume that we have thrown out in these articles much information that was new to many and given some useful hints to whet the minds of others, so that personal and extensive experiment may be instituted and the result, we have no doubt, will be many tributes to electric science.

Western Tool Business.

Some of the Western cities are beginning to rival the Eastern in the quality and price of making tools. Cincinnati boasts of being able to make many tools both cheaper and better than those made in England. They say that they can make planes and edge tools 10 per cent cheaper than we can do here. The amount of tools manufactured in that city during the past year, however, is but of smal amount being only $170,000 worth, and employing but 150 hands. A single establishmen in New York manufactures nearly as much.—It is calculated that there will be $260,00 worth manufactured in Cincinnati this year yet this is but a very small amount for such large city. The following are the Cincinna wholesale prices of the principal articles in the Edge Tool and Plane business:

Coopers and carpenters draw knives, different shapes, $8 per dozen; do long head knives, $12; do short do and champer do $8,50; do broad axes and adzes, $16; do truss hoops, from $1,12 to $3,40 per set; do stock howells, all sizes, $10,20 per dozen; do patent lance crozes, $9; do levelling planes, $8,-40; carpenters broad axes, $26 to $28; do adzes, $16 to $18: do hatchets, $4,50 to $6; do hand axes, $11 to $22.

The Shoe Trade.

The Newburyport Herald says, a letter from Dyersburg, Tennessee, says, unless your shoe manufacturers turn out better shoes they will lose their market here Not more than one half the shoes are sold here now as there were three years ago, in consequence of the poor articles sent here. The West India market, once a very large one, has been lost to our manufacturers in consequence of the inferior article shipped there, and is now supplied exclusively by the French and Germans. Let the manufacturers look to it that our southern and western markets are not lost in the same manner.

Covering for Roofs.

The Albany Evening Journal says what an immense quantity of straw pasteboard is manufactured in this country, and sent to England to be used, after preparation, as a substitute for tiles and shingles. It is laid on the roof then saturated with tar, and sand This forms a perfect roofing and more stable and enduring than any other article used, The above cannot be true.

The Report of the Committee of the Franklin Institute, which was published some time since in our columns, relative to the character of Reaction Water Wheels, was sent to us in manuscript from Philadelphia We are indebted for much valuable information to corresponding members of scientific associations in different parts of our country, who generally are brief and to the point.

Scientific American—Bound Volumes.

The second volume of the Scientific American, bound in a superb manner, containing 416 pages choice reading matter, a list of all the patents granted at the United States Patent Office during the year, and illustrated with over 300 beautiful descriptive engravings of new and improved machines, for sale at this office—Price $2,75. The volume may also be had in sheets, in suitable form for mailing—at $2.

The back Nos. of the present volume may also be had upon application at the office.

THE
SCIENTIFIC AMERICAN.

Persons wishing to subscribe for this paper have only to enclose the amount in a letter directed (post paid) to

MUNN & COMPANY,

Publishers of the Scientific American, New York City

TERMS.—$2 a year; ONE DOLLAR IN ADVANCE—the remainder in 6 months.

Postmasters are respectfully requested to receive subscriptions for this Paper, to whom a discount of 25 per cent will be allowed.

Any person sending us 4 subscribers for 6 months, shall receive a copy of the paper for the same length of time

© 1848 SCIENTIFIC AMERICIAN, INC

FOREIGN PATENT LAWS.

The Foreign Patent Laws which afford the highest security for Inventors seem to be those of Great Britain, France, Spain, the Roman States and Bavaria.

While the legislation of most countries in respect to this subject might be materially improved, it is to be lamented that in some countries, for instance in Portugal and Belgium, the laws, such as they are, have been in some points disregarded by the authorities themselves, and applicants for patents have been subjected to arbitrary conditions.

A brief survey of the Patent Laws of Europe may be of advantage to some readers of the Scientific American.

GREAT BRITAIN.

The British Government grants Patents both of importation and invention for not more than 14 years.

A patent granted in England comprising the principality of Wales and the town of Berwick, costs £110 sterling, or about $528.

A patent for Scotland alone costs £80 sterling, or about $380.

A patent for Ireland alone costs £138 sterling, or about $662 40.

A patent for England and Scotland costs about £190 sterling. or about $912.

A patent for England, Scotland and Ireland costs £218 sterling, or about $1046 40—and even these enormous sums do not include the amounts charged in addition for the Colonies.

With respect to the fees of English Patent Agents, they range from £10 to £20 sterling.

By the Act of 7 and 8 Victoria, the term of the patent may be extended for a period not exceeding 14 years.

Patents of addititon for improvements are granted.

FRANCE.

The French Patent Law is clear and liberal. Patents are issued in France either to citizens or to foreigners for all industrial inventions, except pharmaceutical compounds or remedies, which are subject to special laws—and also except plans and combinations of credit and finance. No discovery is deemed patentable, if made public before application as to enable any one to execute it.

The charges for patents are :—For a term of 5 years 500 francs, or about $93 70.

For a term of 10 years 1000 francs, or about $187 40 ; and for a term of 15 years 1500 francs, or about $281 10.

These charges are to be paid in annual instalments of 100 francs, or about $18 74.

Neglect in making a payment causes a forfeiture of the patent.

No other person besides the original patentee can obtain a patent of addition, within a year from the date of the patent,—but any one in possession of an improvement, may deposit a demand for such a patent, which will remain sealed until the expiration of such 12 months, when it may be granted provided the original patentee has not in the meantime demanded a patent for a similar improvement.

The subject patented must be put in practical operation within two years from the date of the grant.

The term of a patent's duration cannot be prolonged without an express legislative act.

If a foreign patentee obtains a patent in France, the French patent will expire with the foreign patent.

AUSTRIA.

In this country patents of invention are granted to applicants whether natives or aliens, for terms of from 1 to 15 years, at the option of the petitioner. The petitioner may procure a patent for one year and prolong it as he may think proper, within the limits allowed.

Patents are not granted for the preparation of food or medicine.

Patents by the act of January, 1840, are granted for and at the following prices and rates respectively :—For 1, 2, 3, 4, 5, 6, 7, 8 9, 10, 11, 12, 13, 14, 15 years—at 25, 35, 45, 55, 65, 80, 100, 125, 155, 190, 230, 275, 325, 380, 440 florins of Austria, which are about the value of 47 cents each, and those payments must be made in full at the time of soliciting the patents, according to a recent alteration, and there is a further annual tax to be paid on account thereof ranging from $3,56 to $4,80.

A patent of addition, as such, cannot be granted. An improvement can only be protected by a new patent.

A patent right must be exercised within the first year of its acquisition, and not neglected during a year. Foreign patentees, or their assignees, may procure patents in Austria, for not more, indirectly, than 15 years, and determinable with the foreign patent.

PRUSSIA.

Prussian patents, both of invention and importation, are granted *nominally* only to residents of that kingdom, and, if transferred, the assignees must also be residents.

The government usually fixes the period for which patents shall run. They are usually granted for 8 years. For such patents the charge is about $4,86.

The subject of the patent must be new and never have been divulged in any printed work.

In consequence of the cheapness of patents in this country, patents of addition for improvements are not demanded, but new patents for this purpose are taken out.

The government fixes the term within which the patent must be set in operation, which term is usually 5 months after its issue.

BELGIUM.

In this kingdom a patent, either of invention or importation, may be granted for 5, 10 or 15 years, at the option of the petitioner.

If a patent of importation be granted, it expires with the original patent procured in the country from which the importation is made. So that if an American patent has 10 years unexpired, the Belgian patent of importation should be taken out for 10, not for 15 years.

This government rarely extends the life of patents beyond the period first fixed.

The subject of the patent must be new, and never published in any printed work.

The charges for Belgian patents are :—For a 5 years patent about £13 or $62 40 ; for 10 years, about £26 or $124 80 ; for 15 years, about £52 or $248 60. Of this sum £1 or £2 is required to be paid on delivery of patent, and the balance in 2 years. In default of payment the invention is declared to be public property.

Patents of addition are issued gratuitously, but with the same formalities as those prescribed in case of the original patent.

Belgian patents must be put in activity within two years from the time of their issue, although this term is sometimes extended.

Belgian patents may be granted either to natives or to foreigners, and for almost any invention, although the government has in some cases refused to grant patents for improvements connected with railroads, probably supposing that they would be able eventually to procure the benefit of such improvements without paying for them.

A Belgian patent is, by a most illiberal provision, forfeited by taking out a patent in the same name in another country.

HOLLAND.

The Patent Laws of Holland are identical with those of Belgium, although in some respects differently construed by the governments of those countries respectively.

RUSSIA.

The Russian government grants patents of invention and also of importation, both to citizens and aliens.

The actual charges for patents of invention are :—For 3 years, 300 roubles or about $75 ; for 5 years, 500 roubles or about $125 ; for 10 years, 1500 roubles or about $375. And patents of invention are not granted for a longer period than 10 years.

The charges for patents of importation are : For 4 years, 800 roubles or about $200 ; for 5 years, 1000 roubles or about $250 ; for 6 years 1200 roubles or about $300. Patents of importation are not granted for a longer period than 6 years.—[Euling's Foreign Patent Laws of 1845.

No patent of addition will be granted in this country, so that if an improvement be made, a new patent must be granted.

The term prescribed by the Russian government for setting the object of a patent in operation is six months.

(*To be continued.*)

The more ideas a man has of other things, the less he is taken up with the idea of himself.

Insect Architects.

The ground spiders may well be ranked among the wonderful native architects of Australia ; they are of various sizes, and differ in their color, form and markings. They hollow a circular hole in the earth, adapted to the size of their body, and more beautifully formed, and perfectly round, than any engineer with all his scientific instruments could have made it. Within it is nicely tapestried with the finest web, woven closely over the wall of this subterranean drawing room, the depth of which I never accurately ascertained, as at a certain distance they seem to curve, or perhaps lead into a side cell, where the feelers of fine grass I have introduced could not penetrate. Some of these tunnels terminate at the surface with merely a slight web spun over the grains of soil close to the aperture, as if to prevent their rolling into it; the holes being from one sixth of an inch to an inch in diameter. Some of them boast of an extraordinary luxury of a front-door ; these I imagine to be rather first rate kind of spiders, and the doors are as beautiful instances of insect skill and artifice as any that our wonder-teeming world displays to us. When shut down over the hole, nothing but the very most accurate previous knowledge could induce any person to fancy they could perceive any difference in the surface of the soil but, perhaps if you remain very still for some minutes the clever inhabitant will come forth —when you perceive a circle of earth, perhaps the size of a wedding-ring or larger, lifted up from beneath, like a trap-door ; it falls back gently on its hinge side, and a fine, hairy, beautifully pencilled, brown or grey spider pops out and most probably pops in again to sit just beneath the opening, and wait for his dinner of flies or other eatable intruders Then we see that the under side and the rim of his earthen door are thickly and neatly webbed over, so that not a grain of soil can fall away from its thickness, which is usually about the eighth or tenth of an inch., and although so skilfully webbed below, the upper preserves exactly the same appearance as the surrounding soil. The hinge also consists of web, neatly attached to that of the lid, and box. I have the greatest respect and admiration for these clever mechanics, and though I very often with a bent of grass, or a soft green twig, try to persuade one to come up, and be looked at (which they generally do, nipping fast hold of the intrusive probe.) I never was guilty of hurting one. I have picked very large ones off the ground that the plough had just turned over, and have carried them to places unlikely to be disturbed; and I generally have two or three particular friends among them, whom I frequently take a peep at. They often travel some distance from home, probably in search of food, as I have overtaken and watched them returning, when they seldom turn aside from hand or foot placed in their way, but go steadily on at a good swift pace, and after dropping into their hole put forth a claw, and hook the door too after them, just as a man would close a trap-door above him when descending a ladder.—*Mrs. Meredith's New South Wales.*

New Freight Depot of the Boston and Worcester Rail Road.

A short time since, we informed our readers that the increasing business of this road had induced the corporation to buy a large lot of land in Boston for the purpose of building a new Freight Depot. From the Boston Traveller, we learn that this land is nearly opposite the present Freight Depot and runs parallel with the north side of the track. It cost upwards of $100,000 and was formerly owned by Mr. J. Quincy, Jr., and was the spot selected for the proposed South End Market. The price paid for it was about $2,25 per foot, and the profit to the seller upon its original cost is stated to be between 75 and $100,000. It is also stated that the price now paid is the same for which it was offered to the road several years since, with the addition of interest. The depot proposed to be built, will be of brick, 460 feet long, and 66 feet wide, and will be of a fashion somewhat similar to their present depot. The driving of the spiles for the foundation is to commence immediately. In the Spring, it is proposed to enlarge the present Passenger Depot of this road, by taking in that formerly occupied by the Old Colony Road.

Natural Resources of Virginia.

The Editor of the Southerner, an excellent exchange published at Richmond, Va., has lately been visiting the South-western portion of that State and Little Tennessee. After describing the rich and inexhaustible lead Mines, near Wytheville, which yield eighteen per cent of silver, he proceeds·

"On traversing the hill sides, and tops where the miners were at work, we found iron ore of the richest kind in vast quantities. In fact, the two ores were almost interstratified. It struck us as most remarkable that while these ores in vast abundance were found on the surface, the soil was as productive as most of the bottom lands on the rivers and bays of the State. Such a state of things can hardly be shown in any other country on the whole sphere which we inhabit. What hath not God wrought for the people of Virginia, and what folly have they not practised !

" These are not the only treasures of this wonderful region. In the Co. of Washington gypsum or plaster exists in vast quantities. In no one region of the world is it so rich and so abundant. This plaster can be sold at the quarries for fifty cents per ton, and yet it is a dead loss to the farmers and others of this State, for the want of means of transportation There is but one other place in the whole of the United States where it is found. A very small amount of poor quality exists in Western New York. The salt wells in the same county are also the richest in the United States, or perhaps in the world. Beds of fossil or rock salt are found 160 feet in depth, the brine standing at 96 degrees, far superior to the far famed Polish mines. Yet it is of no earthly value, for the want of some better outlet to market. Pig iron can be made and sold at the works for nine dollars per ton, and yet, with the present means of transportation, if it is sent to this city and sold for thirty-five dollars per ton it is a losing business. Is there a man in a thousand, who would believe that Virginia could have been so long insensible to such unheard of, and extraordinary resources ? We do not believe that such a vast mineral and agricultural wealth, in the same extent of territory, can be found on the great globe ; and yet of what value are they to us under present circumstances.

TO CORRESPONDENTS.

" A. S. F. of Dexter, Me."—A L. will perceive all the patents granted last year for stoves by consulting our Patent List, which is received every week from the Patent Office at Washington, and published in the Scientific American.

" T. A. D. of Ky."—You will perceive our answer to your last in last week's Scientific American.

" R. V. K. of Utica, N. Y."—See No. 3 of vol. 2 Scientific American, for the desired information respecting the Patent Laws.

" J H. of Mobile, Ala."—A patent cannot always be secured for a different application of a machine already patented. It depends altogether upon the claim of the patent. Blanchard's machine for turning irregular surfaces although secured first for gun stocks, extends to last turning machines, axe helves and statuary. We think that for the arrangement for knives placed on the cylinder for expanding and contracting, as you described, a patent cannot be obtained.

" J. R. W. of Mass "—Your volume of the " Scientific American," was sent as you ordered on Thursday last.

" J. B. of S. C."—Your books were sent to the care of Robertson & Blackstone, in the packet ship H. Allen, which sailed on Thursday last.

" W. W. R., of Vt."—There are only three primitive colors, yellow, red and blue. All the rest are but shades of these three.

" R. I. of Mass."—Your Aneometer may be new to you, but such an instrument has been long known to us.

" I. R. L., of Md."—Your application, we are glad to hear has been favourably received.

" C. de la R., of Ala "—The chloride of zinc, we think will effectually answer your purpose as a disinfectant. It is simply zinc dissolved in muriatic acid. There is, un-

© 1848 SCIENTIFIC AMERICIAN, INC

doubtedly an electric influence connected with its operations, but what that may be at least the law which governs we cannot tell. Electrical science is but in its infancy.

"O. R. L., of Ill."—It is a first rate overshot wheel that gives 75 per cent effective power.

"J. M. of Pa."—The Gutta Percha can now be obtained in this city.

"A. H. of Me."—We will give your business prompt attention.

"R. C. of Mass."—We will answer you next week.

"A. H. of Lancaster, Mass,"—Your communication came to late too answer in the manner requested through our columns. We can give you the sketch two weeks hence. If that will answer write immediately. You will find what you want however in the "Lives of Eminent American Mechanics."

"W. G. W. of Ga."—If you communicate direct with Mr. Livingston you will get all the desired information.

"J. S. of Maine."—You will have received the information by this time. In addition we would say that there is an excellent work of Pambour, London Edition, on Locomotives and Railroads.

"S. R. of Cleveland."—Candle moulds are made of iron, bronze, pewter, and sometimes of tin alone, but the most common are a mixture of tin and lead. They are made of glass in some countries, and but for their fragility, are by far the best. You will find much valuable information on this subject in Morfit's Chemistry. Carey and Hart, Phila., are the publishers

"T. S. M., of Ct."—Although you have met with difficulties, do not despair, "never say fail."

"N. F. Clyde, N. Y."—We sent your book by Livingston & Wells' Express, and inclosed a letter with it. All sent on Tuesday.

"G. H. D. Mass."—Your package was sent by Adams' Express to Providence on Wednesday.

Our Weekly Patent List.

We have again to apologise for the non-arrival of our weekly List of Patents from the Patent Office at Washington. Our readers are probably all aware that the Commissioner's Report must be presented to Congress by the 1st of January, and during the past few weeks there must have been intense application by the Commissioner and his Examiners to finish such a voluminous document as the Report will be for 1847.

Patent Agency.

Applications for Patents made at this office, on the most reasonable terms. Neat drawings, specifications, and engravings of the first character, and cheaper than anywhere else. Notices of new inventions, Agency for the sale of Patent Rights, and all business of that nature, promptly attended to. Those who have patent rights to dispose of will find a good opportunity and field for their sale—such as Horse Power Machines and Waterwheels of every description. The largest circulation in the world for advertisements of inventions, &c.

GENERAL AGENTS

FOR THE SCIENTIFIC AMERICAN.

New York City, -	Geo. Dexter.
Boston, - - -	Messrs. Hotchkiss & Co.
Philadelphia, - - -	Stokes & Brother.

LOCAL AGENTS.

Albany, - - - -	Peter Cook.
Baltimore, Md., - - -	S. Sands.
Bermuda Islands -	Washington & Co.
Cabotville, Mass.,	E. F. Brown.
Concord, N. H.	Rufus Merrell.
Fall River, Mass. -	Pope & Chace
Hartford, Ct., - - -	E. H. Bowers.
Houston, Texas, -	J. W. Copes & Co.
Jamestown, N. Y. -	E. Bishop.
Lynn, Mass, - -	J. E. F. Marsh.
Middletown, Ct., - -	Wm. Woodward
Norwich, Ct., - - -	Safford & Parks.
New Haven, Ct., - -	E. Downes.
New Bedford, Mass., -	S. F. Hoyt
Newburg, N. Y. -	S. A. White.
Newark, N. J., - -	J. L Agens.
Newark, N. J - -	Robert Kashaw.
Providence, R. I., - -	H. & J. S. Howe.
Rochester, N. Y. -	D. M. Dewey.
Springfield, Mass., - -	Wm. B. Brocket.
Salem, Mass., - - -	L. Chandler.
Saco, Me., - - - - -	Isaac Crocker.
Savannah, Geo -	John Caruthers.
Troy, N. Y., - - -	A. Smith.
Taunton, Mass., - -	W. P. Seaver.
Utica, N. Y. - -	Cannief & Co.
Williamsburgh, - -	J. C. Gander.
Dover, N. H. - - - -	D. L. Norris.

CITY CARRIERS.

Clark Selleck, Squire Selleck.

Persons residing in the city or Brooklyn, can have the paper left at their residences regularly, by sending their address to the office, 128 Fulton st., 2d floor

Advertisements.

☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

Advertisements are inserted in this paper at the ollowing rates :

One square, of eight lines one insertion,		$ 0 50
" " " "	two do.,	75
" " " "	three do.,	1 00
" " " "	one month,	1 25
" " " "	three do.,	3 75
" " " "	six do.,	7 50
" " " "	twelve do.,	15 00

TERMS:—CASH IN ADVANCE.

V. B. Palmer is duly authorized to receive Subscriptions and and a limited number of advertisements for the "Scientific American," in Philadelphia, Baltimore and Boston.

CHARLES M. KELLER,

ENGINEER AND ATTORNEY,

For procuring and defending Patents.

Office—No. 304 Broadway,

j1 3m* NEW YORK.

THEODORE F. ENGELBRECHT,

INVENTOR OF THE IMPROVED

Patent Sockdologer Fish Hook,

Office—No. 79 John Street, New York.

T. F. E. devotes particular attention to introducing and selling Patent Rights, or Manufactured Patent Articles throughout the United States and Europe, and flatters himself that he is eminently successful. Patentees and Inventors are invited to call.

References.—Munn & Co. Scientific American, New York ; Kingsley & Pirrson, Eureka, New York; W. H. Starr, Farmer & Mechanic, New York ; S. Nichols, Editor Sunday Mercury, New York ; Williamson & Burns, Sunday Dispatch, New York ; Edmund Morris, Editor Gazette, Burlington, N. J. ; J. B. & P. Kunkle, corner of Garden and Willow sts., Philadelphia; John Hancock, Editor Mirror of Patent Office, Washington, D. C, d25 3m*

ASHE,

MANUFACTURER OF

Spring Box, Tailor's, Surveyor's, and every other kind of

Measure Tapes,

No. 133 Fulton Street, N. Y.

Factory at Green Point, Bushwick, L. I. d25 2m*

Magnificent Portrait of General Taylor.

☞ We have a few thousand left, which we will dispose of at 25 dollars per thousand, 3 dollars per hundred, or 4 cents singly, or 30 copies for one dollar. They may be forwarded by mail. Address at this office. d25

Gold ! Gold ! !

☞ Who will not buy a Gold Pen, when they can be obtained with a silver case for **$1,25!** They can be had at this office for that price. d25

Lamps, Chandeliers,

CANDELABRA, GIRANDOLES, RICH CHINA AND BOHEMIAN GLASS VASES, HALL LANTERNS, &c.

Dietz, Brother & Co.

Washington Stores, No. 139 William street, New York, (one door south of William st.)

ARE manufacturing and have always on hand, a full assortment of articles in their line, of the following description. which they will sell at wholesale or retail at low prices, for cash :

Solar Lamps—Gilt, Bronzed and Silvered, in great variety.
Suspending Solar Lamps, gilt and bronzed.
Bracket do do do
Side do do do
Solar Chandeliers, do do 2, 3 4 and 6 lights.
Camphene Suspending Lamps, gilt and bronzed.
do Bracket do do
do Chandeliers do do 2, 3, 4 and 6 lights.
Girandoles—Gilt, silvered and bronzed, various pats.
Candelabras do do do
China Vases and Bohemian Glass Vases do
Hall Lanterns, a large assortment, plain and cut.
do with stained and Bohemian Glass Lights.
Lamp Wicks, Chimneys and Shades of all kinds.
Paper Shades, a large assortment of new patterns and styles.
OILS—Sperm, Whale and Lard, of the best quality.
Superior Camphene and Burning Fluid.
November 29, 1847. d18 6m

TO PAINTERS, &c.

For Sale

No. 1—Chemical Oil Gold Size for Sign Writing and Striping, &c.

No. 2—Chemical Oil Gold Size for *Carved Work* and general Decoration.

No. 3—Chemical Dryer, for all kinds of paints—prepared for use. It is one of the most powerful and most convenient, of the kind, ever yet compounded.

N. B. The above gold sizes work as Pleasantly as any common oil color and will gild in 12, 24 or 36 hours.

These compounds are all tested, but should any be found to fail, they can be returned and others given in exchange, or the money refunded, provided they have not been adulterated.

QUARTERMAN & SON,
House Painters, Grainers, &c.
n6 3m* 18 Burling Slip, New York.

Holden's Dollar Magazine,

Containg 64 pages of Reading Matter ! At the astonishing low price of

ONE DOLLAR PER ANNUM ! OR SIX COPIES FOR FIVE DOLLARS !

IT contains at least one third more reading matter than any similar publication in the United States, and is decidedly the largest, cheapest and most desirable Magazines ever published in this or any other country ! The contents of Holden's Dollar Magazine will consist of

Tales, Essays, Sketches and Translations.

from the pens of some of our first authors, including a series of well-wrought and spirited sketches illustrative of incidents connected with the history of the Union ; arrangements having been made to elucidate some useful Historical Reminiscence in every tale produced. The other usual features of a first class Magazine will be incorporated in the "Dollar," which, with its vast capacity, sixty-four pages, will enable the publisher to avail himself of many of the best writers on the other side of the Atlantic—he being pledged to render Holden's Dollar Magazine the best as well as the cheapest literary enterprise ever undertaken.

Who will not subscribe ?—Among the writers of acknowledged talent in this country who are already engaged for the "Dollar Magazine," are those of Major M. M. Noah, C. F. Briggs, (Harry Franco of the Knickerbocker,) Rufus W. Griswold, B. Constable, T. W. Meighan, author of the "Revolutionary Sketches," "Legends of the Thirteen Colonies," and together with the names of many other of our most distinguished authors who will furnish occasional notices peculiar to this Magazine.

Each number will contain a long and thorough review of the principal topics of the month, interspersed with anecdotes, oddities and gossip upon various subjects, which cannot failof proving instructive as well as amusing. This will be served up monthly by one of the best humurous authors of the day, and will be a feature alone worth more than the subscription price. In the course of the volume, articles will be given from the pens of nearly all the following European authors, viz : Douglas Jerrold, Gilbert Abbott A'Becket, Goodwin Barmby, William Howitt, S. C. Hall, W. W. Thackery, Wm. Harrison Ainsworth, Mark Lemon, William Carleton, Thomas Miller, J. R. Planche, Martin Farquhar Tupper, Alfred Tennyson, Ebenezer Elliot, Charles Mackay, together with occasional articles from Mary Howitt, Mrs. S. C. Hall, Hon. Mrs. Norton, Harriet Martineau and many others our present space will not allow us to specify. Translations of some of the minor Tales of Eugene Sue, Alexander Dumas, Geo. Sand, &c., will be given, if free from the pernicious influence of many French tales, and particular care will be taken that nothing demoralizing in its tone ever finds a place in the pages of the Dollar Magazine.

The publisher has also made arrangements for a number of tales from the German and Spanish, and is confident that he possesses facilities for their selection unsurpassed by any one in America. It will be readily acknowledged by any one at all conversant with literature in every form, that

HOLDEN'S DOLLAR MAGAZINE,

is the largest, cheapest and best periodical in the World, and he challenges comparison with anything published in Europe or America, satisfied that the sovereign people will decide for themselves as regards the merits of the respective works.

Holden's Dollar Magazine will be issued monthly, in Nos. of 64 pages each, printed on fine paper, manufactured expressly for the work, and of extra quality, with new and beautiful type. Terms —ONE DOLLAR per annum, payable invariably in advance : **Six Copies for Five Dollars,** or 20 copies for 20 dollars, when mailed to one address,

Address, post paid,

CHARLES W. HOLDEN,
Publisher of Holden's Dollar Magazine, 109 Nassau st., N Y.

N.B. Country papers copying this advertisement and noticing us editorially, will be entitled to a copy for one year, without an exchange. Those doing so will send one marked copy to "Holden's Dollar Magazine." d18 4t

☞ The above is prepared to execute all orders at the shortest notice and on the most reasonable terms.

Johnson's Improved Shingle Machine.

THE Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eighth more shingles can be sawed in the same given time than by any other machine now in use.

Augusta, Maine, Oct. 1, 1847. J. G. JOHNSON.

AMERICAN HARDWARE.

THE SUBSCRIBER having been engaged in selling American Hardware on commission for 7 years, solicits consignments from manufacturers, and will refer to those who have employed him the above number of years. SAMUEL C. HILLS,
n8 189 Water st

Machinists Tools.

THE Subscriber is now manufacturing a superior article of Large Turning and Screw Cutting Lathes, Drilling Machines, &c. to which he would respectfully call the attention of Machinists and others requiring the above articles. Also, Machinery of every description, manufactured to order, at 42 Gold street, New York. G. B. HARTSON. o2 1m*

NEW YORK AGRICULTURAL WAREHOUSE AND SEED STORE.

A. B. ALLEN & CO., No. 187 WATER STREET.

Dealers in Agricultural Implements and Field Seeds of all kinds.

PLOWS.—Upwards of Fifty different kinds of Plows, calculated for the North, South and West ; also Cultivators, Harrows, Seed Sowers, Corn Planters, Threshing Machines, Grain Mills, Corn and Cob Crushers, Straw Cutters, Sugar Mills, Fan Mills, Horse Powers, Shovels, Spades, Hoes, Axes, &c. &c. Castings, of all parts of the different kinds of Plows. Also Gin-gearings, Steam Engines, Sugar Boilers, Sugar Mills, Kettles, Caultirons, &c. for the Plantation. Iron Work of all kinds done to order, in the cheapest and best manner. Fertilizers.—Peruvian and Africal Guano, Lime, Plaster of Paris, &c. &c. Wire Cloths and Sieves.—Different kinds and sizes. Fruit and Ornamental Trees and Shrubs.—Orders taken for these and executed from a choice of the best nurseries, gardens and conservatories in the United States Agricultural Books.—A varied and general assortment of these for sale.

The American Agriculturist.—A Monthly Publication of 32 pages, 8 vo. with numerous engravings. Price $1 per year. A. B. Allen, Editor. d11 4t

A LITERARY AND FAMILY PAPER.

THE YANKEE BLADE;

A Home Journal and Fireside Companion

DEVOTED TO

Literature, Education, Morals, Fun, News, &c.

Published every Saturday at $2 per annum

☞ This Literary and Family Journal having during the past six years, met with the most brilliant and unexpected success,—the Publishers, grateful for the many favors shown to them, have determined to make such improvements in its character, as will greatly enhance its attractiveness and value, and render it worthy of still higher applause. The paper has been dressed throughout in a style of surpassing elegance and beauty, while its size has been greatly enlarged, and various other improvements introduced, making it one of the best and most attractive newspapers in the Union.

Among other leading features, the Blade will contain from one to four of the

Richest and most Interesting Stories of the Day.

Not only original, but gems of the European and American Magazines, and in all cases a preference will be shown to such as can be published entire in a single paper. In addition its columns will be stored with POPULAR ESSAYS BY ABLE WRITERS, Choice and beautiful Poems, Gleanings from New Works, Selections from Foreign Journals, Mirth-creating Sketches, "Whittlings," Jokes, Scraps, News Items, and every thing else that can give zest and

In brief, our object will be to render it an agreeable, entertaining and ever welcome Family Visitor, brimming always with INSTRUCTION and AMUSEMENT, and especially desirable to the FAMILY CIRCLE.

THE LADIES MAGAZINE AND CASKET OF LITERATURE,

is also published at the same office. Terms : $1,00 per annum in advance. It will contains superb engravings, Music, Flowers, &c &c. It is one of the handsomest Dollar Magazines published.

☞ J. A. Gilbert, 22 Ann st., and George Dexter, 32 Ann st., New York are Wholesale Agents for the Blade and Magazine.

MATHEWS, GOULD & CO.
Publishers, 138 1-2 Washington st., Boston, Mass.
n20 3m

To Mill Owners.

HAVILAND & TUTTLE'S Patent Centre Vent Pressure Water Wheel.—These wheels are now in successful operation in many towns in Maine, Massachusetts, and Rhode Island, and are found to surpass in power and facility of adaptation any water wheel now in use. This wheel was awarded the silver medal at the Fair of the American Institute recently held in New York and a diploma at the Mechanics' Fair in Boston.

The wheels are manufactured and for sale by the FULTON IRON FOUNDRY CO., South Boston, Mass.,—where the wheels can be seen and any information cencerning them had.

Patent Rights for different States, Counties, &c. for sale, as above. n20 3m*

Veni ! Vidi ! Emi !

☞ THIS IS THE MOTTO OF ALL THOSE THAT HAVE EXAMINED KNOX'S NEW FALL STYLE OF HATS, with a view of buying—

I CAME ! I SAW ! I BOUGHT !

His BON TON Establishment (as all know) is at 128 Fultou street. s18 3m

Lap-welded Wrought Iron Tubes

FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,
d26* 28 Platt street, New York

GENERAL PATENT AGENCY.

REMOVED.

THE SUBSCRIBER has removed his Patent Agency from 12 Platt to 189 Water street.

The object of this Agency is to enable Inventors to realize something for their inventions, either by the sale of Patent Goods or Patent Rights.

Charges moderate, and no charge will be made until the inventor realizes something from his invention.

Letters Patent will be secured upon moderate terms. Applications can be made to the undersigned, personally or by letter post paid.

n8 SAMUEL C. HILLS, Patent Agent.

DAUGERRIAN GALLERY.

GURNEY'S

PREMIUM DAUGERRIAN GALLERY.

No. 189 Broadway, N. Y.

☞ Pictures taken at this establishment warranted to give satisfaction. j24

Henry Waterman, 239 Cherry st.

MILLWRIGHT AND ENGINEER.

☞ Steam Engines, Mill Work, Horse Mills, Castings, and Machinery of all kinds, executed with promptness and at low rates. d11 3m*

© 1848 SCIENTIFIC AMERICIAN, INC

For the Scientific American.

Japanning.

(Continued from our last.)

BLUE JAPAN GROUNDS.

Blue japan grounds may be formed of bright Prussian blue. The color may be mixed with shellac varnish and brought to a polishing state by five or six coats of varnish of seedlac. This varnish, however, is apt to give a greenish tinge to the blue, as the varnish has a yellowish tinge and blue and yellow form a green. Whenever a light blue is desired, the purest varnish must always be used.

SCARLET JAPAN.

Ground vermillion may be used for this, but being so glaring, it is not beautiful unless covered over with rose pink or lake, which have a good effect when thus used. For a very bright crimson ground, safflower or Indian lake should be used always dissolved in the alcohol of which the varnish is made. In place of this lake, carmine may be used, as it is more common. The top coat of varnish must always be of the white seedlac—which was described in a former article—and as many coats given as will be thought proper—it is easy to judge of this.

YELLOW GROUNDS.

If turmeric be dissolved in the spirit of wine and strained through a cloth and then mixed with pure seedlac varnish, it makes a good yellow japan. Saffron will answer for the same purpose in the same way, but the brightest yellow ground is made by a primary coat of pure chrome yellow, and coated successively with the varnish Dutch pink is used for a kind of a cheap yellow japan ground.—If a little dragon's blood be added to the varnish for yellow japans, a most beautiful and rich salmon colored varnish is the result, and by these two mixtures all the shades of flesh colored japans are produced.

GREEN JAPAN GROUNDS

A good green may be made by mixing Prussian blue along with the chromate of lead, or with turmeric, or orpiment (sulphuret of arsenic) or ochre, only the two should be ground together and dissolved in alcohol and applied as a ground, then coated with four or five coats of shellac varnish, in the manner we have already described in a former article — A very bright green is made by laying on a ground of Dutch metal, or leaf of gold and then coating it over with distilled verdigris dissolved in alcohol, then the varnishes on the top. This is a splendid green, brilliant and glowing.

ORANGE COLORED GROUNDS.

Orange grounds may be made of yellow mixed with vermillion or carmine, just as a bright, or rather inferior color is wanted.—The yellow should always be in quantity to make a good full color, and the red added in proportion to the depth of shade If there is not a good full body of yellow, the color will look watery, or bare as it is technically termed.

PURPLE JAPAN GROUNDS.

This is made by a mixture of lake and Prussian blue, or carmine, or for an inferior color vermillion, and treated as the foregoing.

When the ground is laid on and perfectly dried, a fine coat of pure boiled nut oil then laid on and perfectly dried, is a good method to have a japan not liable to crack. But a better plan is to use this oil in the varnish given —the first coat—after the ground is laid on, and which should contain considerable of pure turpentine. In every case where oil is used for any purpose for varnish, it is all the better if turpentine is mixed with it. Turpentine enables oils to mix with either alcohol or water. Alkalies have this property also.

(To be continued.)

The society of Block printers in London, has lately presented Queen Victoria with a piece of muslin delaine printed by hand. It was a most splendid article.

For the Scientific American.

Receipt for an Ash Vat for Dyeing Indigo Blue.

Fill the vat with clean water; then put fire to heat it and put the dye stuffs in at once, as follows: To one pound of indigo allow three pounds of the best pearl ashes, and 8 ounces of madder to every pound of indigo; after they are all in stir well up with a rake; when that is done cover the vat up with cloth that no air may get in. The bran should be put into a bag, because if the vat does not spring there arises a putrid smell. The only thing to remedy that is to give the vat a little quick lime, but be careful not to put too much in as for fear of what is called softening the vat; also care must be taken not to overheat but keep only at good heat, because if the vat is overheated the indigo will lose the combination with the ashes and madder and the vat will turn muddy in the color. The remedy for that is 1 lb. of pearl ashes with 4 ounce of madder. If it does not spring and come to a working state in 12 hours, then add a little bran in a bag with half a pound of ashes; if it does not spring with that in 12 hours take out the bran and put in about two quarts of malt with one pound of pearl ashes and four ounces of madder, with a little lime.

A very fast blue with indigo is dyed by saturating powdered indigo for some days, kept at a fermenting heat in a vessel filled with urine and which is better of a little bran and madder. No faster, or more primitive blue on wool is dyed than in this manner, and any person can do it.

The receipt for an ash vat can only be useful to manufactories. The ash vat is used for dyeing a fast blue on silk, such as a basis for a green colored umbrella to stand exposure to the sun. All our common blues and greens on silk are very fugitive, with the exception of Prussian blue, which we shall treat of at another time.

To Give Plaster of Paris Figures the appearance of Marble.

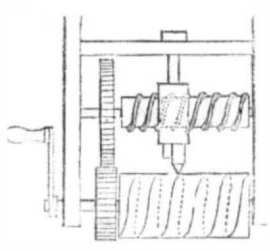
Grate an ounce of fine white soap into four pounds of water and dissolve it in a glazed earthen vessel; then add one ounce of white wax scraped down and when the whole are incorporated it is fit for use. Having the figure well dried it is dipped into this varnish, or liquid, and then taken out, and in about four minutes it will be perfectly dry, when it should be dipped again. Three dips is generally enough, when the figure must be put away for about one week in a dry place out of the way of dust, and when it is dry, if rubbed gently with a soft muslin rag a brilliant gloss will be produced, but care must be taken not to rub too hard, or the varnish may be abraided. To a greater or less quantity of water the above must be used in a proportional manner.

MECHANICAL MOVEMENTS.

The Transfer of Speed.

The transfer of speed in wheels is communicated from a large to a smaller drum or pulley, and the speed is increased in proportion to their diameters, although the difference in this respect is not the same as many would be led to suppose. It is a common opinion even among mechanics that in the gearing of wheels to the power wheels, or main driver, that there is a gain or loss of power according to the size of the geared wheels. But this is a mistake. All the power that is lost in the communication of power from a water wheel or steam engine is in the friction. The truth of this will be easily perceived. by asking the question, "Is there any power lost of a water wheel twenty feet in diameter by the gearing of a cog wheel three feet in diameter to the main shaft for driving a quantity of machinery proportional in resistance to the main power?" Every person will see that there is no loss but by friction and yet we received a letter a short time ago asking what was the loss and gain of power in the gearing of one cog wheel to the outside or inside rim of another cog wheel fixed on the main shaft of a water wheel. If, as some suppose, there is a loss of power in the gearing of a small wheel to a larger one in proportion to their difference of size, then it would be a sad waste of power to gear a cog wheel of three feet in diameter to the main shaft of a water wheel twenty feet in diameter for the purpose of driving machinery. Whatever power there is in the main driver, it is not lost in the main gearing but by friction, and there is no doubt but that friction is increased or lessened according to the different arrangements in gearing, the trueness of connection and relative weight and proportion for sweet motion. The loss or gain of power in main drivers is altogether a different branch from that of minor gearing and belongs to the study of first causes, or fundamental principles of mechanics. A wheel one foot in diameter that lifts one pound every revolution and revolves once every minute will lift 60 lbs. per hour, and a wheel half of its size with the same driving power will lift half a pound every revolution but makes two revolutions per minute, therefore it will make 120 revolutions in an hour and lifting half a pound each time, lifts as many pounds exactly in an hour as the wheel of double its diameter.

Screw Movement.



The above cut represents a method by which spirals are produced by screw movement.—The cutter is attached by a nut to a bed piece above to keep it steady as it is moved along in a slot therein. The toothed wheel on the lower shaft is driven by the handle and by said wheel meshing into the wheel on the screw axle, the cutter is moved traversely and cuts a spiral on the lower shaft as said shaft is revolved. There is a thread in the cutter box for the correct action of the screw.

The Protective Powers of Vaccination.

The Philadelphia Examiner has a report on this subject issuing from the College of Physicians, of Philadelphia. The report is very carefully drawn up, it is founded on a large scale of facts: and the conclusion, fully confirmatory of our previous knowledge, will bear the repetition.

1st. That Vaccinnation is the best preservative of human life, now known against the contagion of small-pox; and althought it has not answered the full expectations of its more sanguine advocates, by protecting the system in all instances against at least a modified form of variola, which in the case of the small-pox itself, nevertheless life is very generally protected by it, and humanity and sound practice imperiously call for its continuance.

That portion of the community who have been once succsssfully vaccinated, are, in the great majority of cases, fully protected from small-pox, or varioloid.

A second vaccination does not insure the system in every case against an attack of varioloid; neither does second vaccination prevent an impression being made on the system by a subsequent operation.

Upon the recurrence of small pox in a family or neighborhood, it is important that all individuals in regard to whom there is any doubt, or uncertainty as to the fact of their having been successfully vaccinated and should be subjected immediately to the operation—this being the most certain means of preventing the spread of the contagion.

Personal experience has convinced us that the above report is true in every particular.

Great Belgian Iron Foundry.

The foundry of Seraing, the most important in Belgium—was founded by the late John Cockerill, but has since been very greatly extended by its present proprietor. M. Pastor It now occupies a superficial extent of 2,170 yards, has six blast furnaces, five of which are employed in smelting, and the remaining one in preparing the metal for superior castings; the produce of the five is about 73 1-2 tons of pig iron in 24 hours, and the latter 9 tons of fine casting metal in the same period The quantity of metal required to supply the furnaces. in 12 months, is 53,572 tons of iron ore, 34,852 tons of coke, and 14,723 tons of limestone, or other flux, the tilt hammers weigh 4 1-2 tons each; 11 steam engines are employed, of an aggregate power of 500 horses; the principal forge produces 86 tons of wrought iron monthly. The workshop, for the manufacture of locomotive engines, extends over a space of 1,260 square yards, traversed down the centre, by two parallel lines of railway, and the lathes for turning the various delicate parts of a most gigantic description. To form some idea of the extent of this establishment, the reader must bear in mind that there are upwards of 4,200 men employed day and night. In addition to the iron furnaces there are 14 smaller ones, for copper, brass, steel, etc. The produce annually of the rough metal, before manufacture, cannot be much less than $5,000,000.

A Pen-Knife Genius.

The Rochester Democrat, says, we were shown, yesterday, at the Express office of Well's and Co., a great curiosity, that should place the owner at the head of the pen-knife fraternity. It was a wooden chain, fourteen feet long, with a box of balls at each end, the whole of which had been cut and shaped with a pen-knife, from a pine stick. It was left at the express office in March last, enclosed in a box, and directed to Sir John Colborne, of the Isle of Jersey, with directions to have it presented to the queen. The steamer refused to take it unless the charges were first paid; and as the person who left it at the Rochester office could not be found, it was, a few days ago, returned. The box was opened, and the owners name discovered to be Le pelly, now a resident of Ohio city. Measures have been taken to restore to him his property.

House's Telegraph it is said prints 180 letters in one minute. We think this is barely possible.

THE NEW YORK

SCIENTIFIC AMERICAN:

This paper, the most popular weekly publication of the kind in the world, is published *At* 128 *Fulton Street, New York, and* 13 *Court Street, Boston,*

BY MUNN & COMPANY.

The principal office being at New York.

The SCIENTIFIC AMERICAN is the Advocate of Industry in all its forms, and as a Journal for Mechanics and Manufacturers, is not equalled by any other publication of the kind in the world.

Each number contains from FIVE to SEVEN ORIGINAL MECHANICAL ENGRAVINGS of the most important inventions; a catalogue of AMERICAN PATENTS, as issued from the Patent Office each week; notices of the progress of all new MECHANICAL and SCIENTIFIC inventions; instruction in the various ARTS and TRADES, with ENGRAVINGS; curious PHILOSOPHICAL and CHEMICAL experiments; the latest RAILROAD INTELLIGENCE in EUROPE and AMERICA; all the different MECHANICAL MOVEMENTS, published in a series and ILLUSTRATED with more than A HUNDRED ENGRAVINGS, &c. &c.

This Journal is not only useful to the Mechanic and Manufacturer, but instructive the Farmer, apprising him of all the improvements in Agricultural Implements, besides to instruct him in all the Mechanical Trades.—As a family paper, the Scientific American will convey more useful Intelligence to children and young people, than ten times its cost in schooling, and as a text book for future reference, (it being in quarto form, paged, and suitably adapted to binding,) each volume will contain as much useful information as a large library.

The Scientific American has already attained the *largest* circulation of any weekly mechanical journal in the world, and in this country its circulation is not surpassed by *all* the other mechanical papers combined.

☞ For terms see inside

© 1848 SCIENTIFIC AMERICIAN, INC